"GIVE UP, CATCH UP OR KEEP UP WITH INNOVATION? AN EDUCATOR'S DILEMMA"

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MAKE & TAKE

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YOU MAY BE ASKING YOURSELF RIGHT NOW, "WHAT IS A CHIEF INNOVATION OFFICER?"

I...

...manage innovation and entrepreneurship at the Illinois Mathematics and Science Academy.

...am not a classroom teacher, though I teach students.

...would rename this conference "Make, Break and Take."

...work with students (and staff and teachers), mostly beyond the classroom.

...am currently building an innovation hub called IN2 (INnovation and INquiry)

...like building the bridge while I walk over it.

...tend to be disruptive AND know how to follow the rules (when I must).

"Innovation distinguishes between a leader and a follower"
- Steve Jobs

AND YOUR NEXT QUESTION MAY BE,
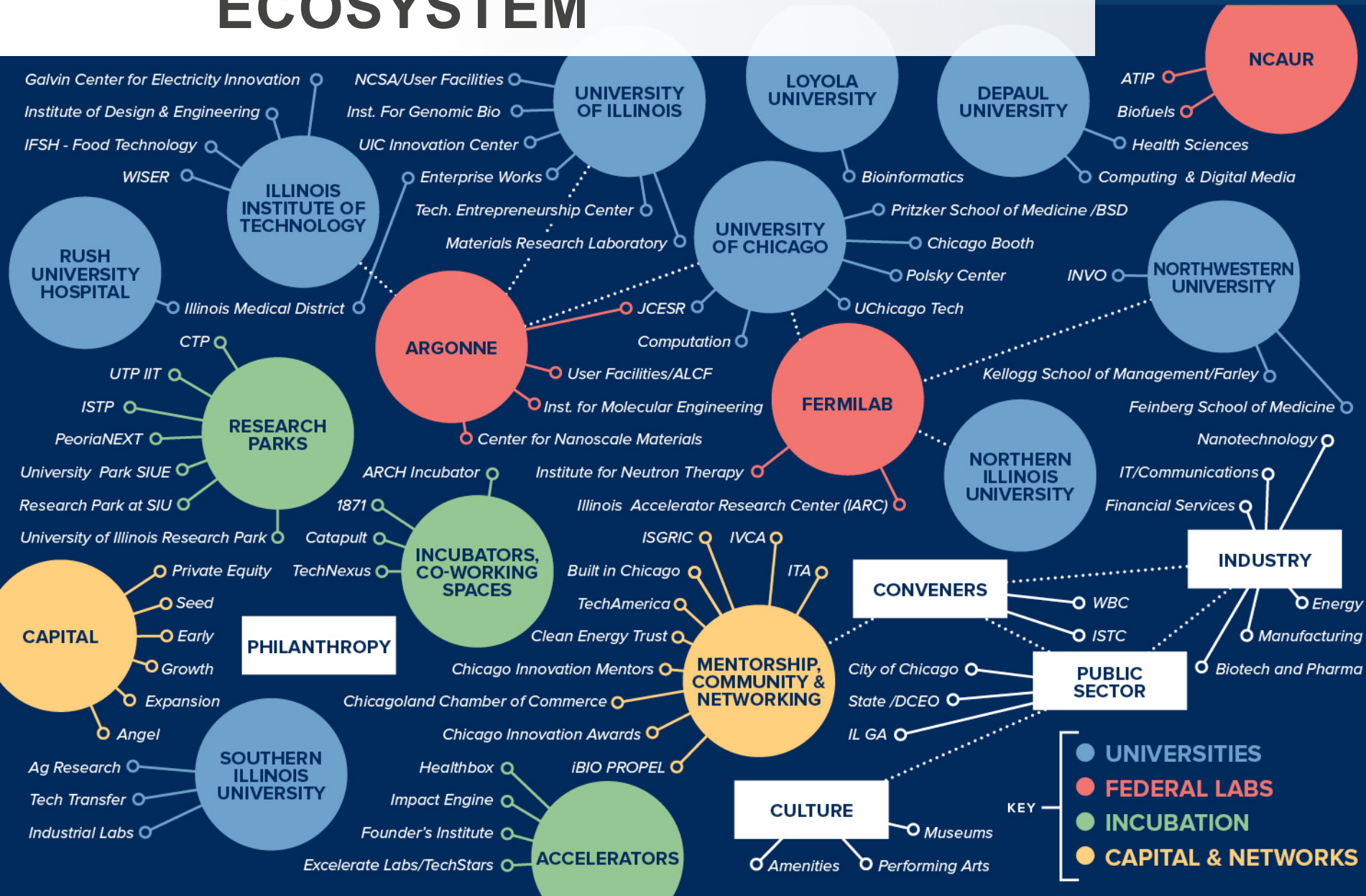"WHAT IS AN INNOVATION HUB?"

in2
@IMSA

IN2IMSA

IN2 (group)

imsa.edu/in2

THE ILLINOIS INNOVATION ECOSYSTEM

ILLINOIS SCIENCE & TECHNOLOGY COALITION

KEY
- UNIVERSITIES
- FEDERAL LABS
- INCUBATION
- CAPITAL & NETWORKS

LET'S GET DISRUPTIVE…WARM UP

You are a kindergarten teacher and are talking with a student and don't notice that one of your students has drawn on the chalkboard with crayon.

What would you instinctively do at that moment?

1) Say "Stop drawing on the board with a crayon" and sit the child down with no consequence. .
2) Ask the child to stop drawing on the board and discipline them for their behavior.
3) Ask the child to sit down while you call the custodian to clean off the board.
4) Send the child to the principal's office.
5) Ask the child to stop drawing and use this disruption as an opportunity for learning.

"Innovation, comes down to people and their environment."   Gordon Murray

KYLE' STORY

Who knew that peanut butter would take crayon off a chalk board?

MAKE & TAKE PRE-TEST

1. Wearable Technology*

2. Virtual Reality (VR)

3. Bring Your Own Device (BYOD)*

4. Crowdsourcing

5. Lean Start-Up/MVP

6. Connected Learning

7. Digital Badges

8. Internet of Things (IoT)

9. Maker Space* (HOMAGO)

10. Design Thinking*

*Horizon Report/2015 Higher Education Edition Top Trends in next 12 months

10 Questions – 10 points each

HOW DID YOU DO?

10 Questions – 10 points each

0-10 = Novice
20-30 = Advanced Beginner
40-50 = Competent
60-80 = Proficient
90-100 = Expert

5 Stages of Mastery

(Based on the Dreyfus Model of Skill Development -1980)

1. WEARABLE TECHNOLOGY

WEARABLE TECH TIMELINE

While wearable technology is the most prolific trend in the tech industry today, its origins go back in history with wearable inventions that revolutionised the way we see and track life. From activity-tracking fitness bands to Google Glass and Oculus Rift, big brands are getting involved in the once-niche technology. Our timeline shows how it all started…

1979 SONY WALKMAN

1984 CASIO DATABANK CD-40

1999 FIRST BLACKBERRY

2000 FIRST BLUETOOTH HEADSET

2001 APPLE iPOD

2007 APPLE iPHONE

2013 GOOGLE GLASS

2014 APPLE WATCH

Source: BeyondCurious

"Just as smartphones moved technology and communications off of the desktop and into your hand, there is every reason to expect that wearable technology will eventually replace smartphones."   INC/2013

2. VIRTUAL REALITY (VR)

Seen as the next major computing platform, Facebook acquired Oculus Rift VR to build the so-called knowledge economy. How will education fit in? Just ask zSpace and other companies to come.
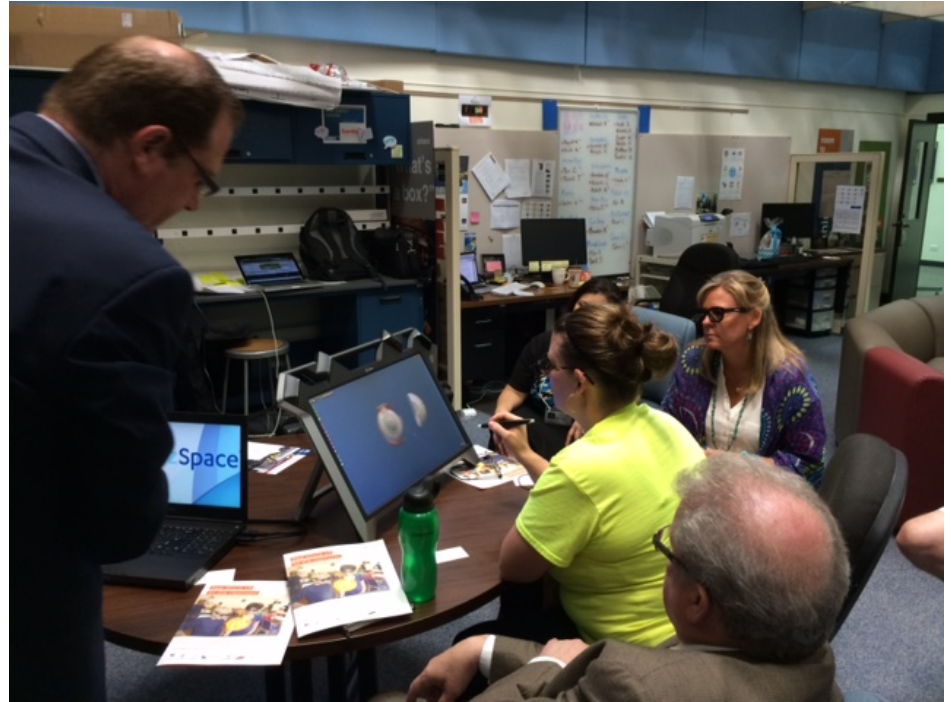
"We're making a long-term bet that immersive, virtual and augmented reality will become part of people's daily life."

- Marc Zuckerberg

March 26, 2014 Facebook $2B purchase of Oculus Rift

3. BYOD

"As technology is evolving at a rapid pace outside of the classroom, students are adept at multiple smart devices and social media.

Research shows that implementing technology to enhance and improve student learning creates a positive learning atmosphere for most students.

BYOD programs in school districts may be a way to improve student engagement, to interact with peers, to improve communication and to extend the place and time of learning, not restricting to the classroom."

STUDENTS USING THEIR OWN TECHNOLOGY DEVICE IN THE CLASSROOM: CAN "BYOD" INCREASE MOTIVATION AND LEARNING - by Marc Vanwelsenaers

Bring Your Own Device

4. CROWDSOURCING

crowd·source
/ˈkroudˌsôrs/

verb
gerund or present participle: **crowdsourcing**

obtain (information or input into a particular task or project) by enlisting the services of a number of people, either paid or unpaid, typically via the Internet.
"she crowdsourced advice on album art"

MOOCs (crowdsource learning/classes?)
Sharing economy trend in education?

5. LEAN START UP/MVP
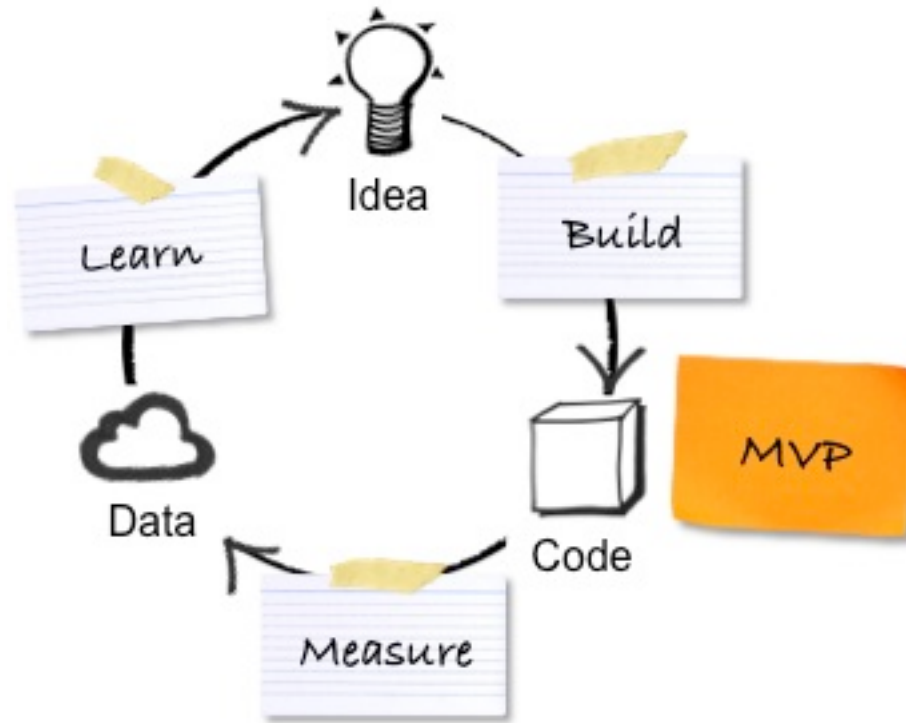
"A Minimum Viable Product is that version of a new product that allows a team to collect the maximum amount of validated learning about customers with the least effort."   Eric Ries/Lean Start-Up

Idea Shower

MVP

"I know it's a cliché, but I have a lot of good ideas in the bath, I really did."

Gordon Murray

6. CONNECTED LEARNING

3 learning principles:

1. Interest powered
2. Peer supported
3. Academic, career, civic payoff

3 design principles:

1. Production-oriented (ways to showcase)
2. Openly networked (many contributors)
3. Shared purpose (mentor to student, student to mentor)

Concepts from Sam Dyson's 2015 NSTA keynote

The Goosinator story

7. DIGITAL BADGES

"Digital badges are an assessment and credentialing mechanism that is housed and managed online. Badges are designed to make visible and validate learning in both formal and informal settings, and hold the potential to help transform where and how learning is valued."

- MacArthur Foundation

"Badges can help engage students in learning and broaden the avenues for learners of all ages to acquire and demonstrate—as well as document and display—their skills."   - Arne Duncan
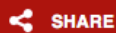
8. INTERNET OF THINGS (IOT)

"IoT is a network of dedicated physical objects (things) that contain embedded technology to interact with their internal state or external environment."   Gartner/2014

8. INTERNET OF THINGS (IOT)

The A-List ⌄ | ○ Lincoln Park mansion for sale at $9 million

U of C Internet of Things project gets $3.1 million

JOHN PLETZ ON TECH

SHARE | Argonne National Laboratory | Northern Illinois University | UI Labs | University of Chicago | University of Illinois | More +

A lot of things are happening on the Internet of Things front in Chicago.

The National Science Foundation is providing $3.1 million to the ambitious "Array of Things" project, led by researchers at the University of Chicago and Argonne National Laboratory, to outfit the city with 500 sensors to measure everything from air quality to traffic. UI Labs has hired a director to lead its City Digital project, which will use data to better understand and design how cities work.

TUNEIN StreetWise 2015 FUNDRAISING GALA
OCTOBER 1, 5:30-8:45PM
MUSEUM OF BROADCAST COMMUNICATIONS
360 N. STATE ST. CHICAGO

"IoT is a network of dedicated physical objects (things) that contain embedded technology to interact with their internal state or external environment."   Gartner/2014

FROM INTERNET OF THINGS TO INTERNET OF EVERYTHING?

"IoE takes data-driven decision-making in education one step further, encouraging innovation that motivates and excites learners, turning passive learning into active learning, informing educators about students' lifestyles, and helping teachers develop better curriculum and assessment structures."

CISCO/ Education and the Internet of Everything/2013
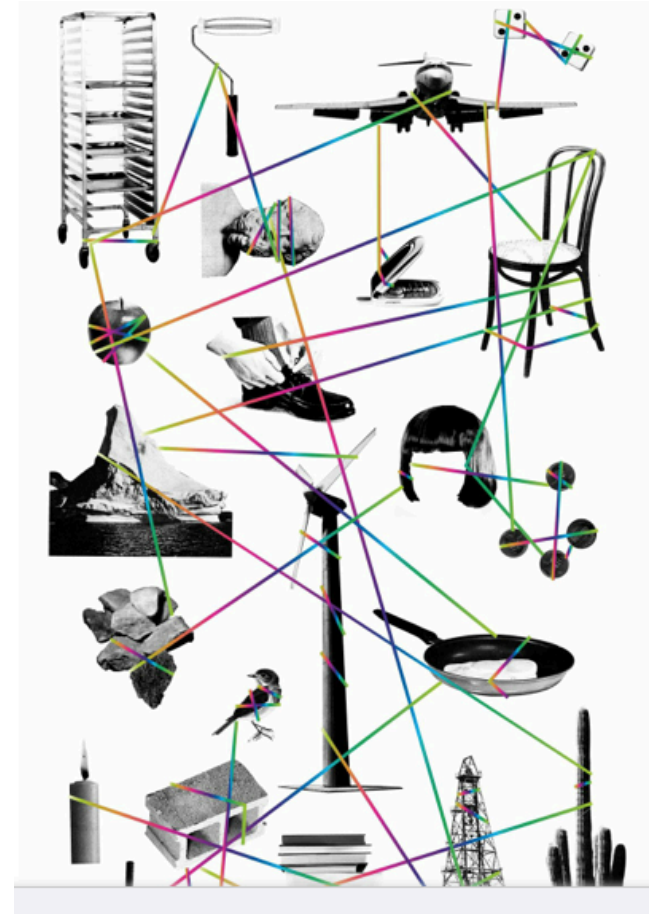
"In the next five years, technology will disrupt the learning experience in many ways. Students will consume knowledge and learning in new ways, classrooms and teachers will be better equipped for education of students, and the learning experience will continue to become more virtual." – Citrix 2020 Technology Landscape

FROM INTERNET OF THINGS TO INTERNET OF EVERYTHING?

Examples of Use (from The Education Partners, August 2015):

"As students walk into the classroom, attendance could be logged automatically using a device such as the Nymi, a wearable "smartband" that uses the wearer's ECG pattern to authenticate identity. When the students take their seats, a beacon might push a warm-up exercise directly to their smart surfaces.

Teachers are freed from managing classroom procedures to focus more fully on students – and perhaps focus more incisively too. Neurosensors, akin to Interaxon's Muse, could provide insight into students' cognitive activity using EEG technology that measures the rate of brain waves like one might measure a pulse.

And when it comes to classroom discipline, teachers could send a "haptic" vibration – similar to silent notifications on mobile devices – to a student's wearable or tablet, redirecting her attention or behavior while helping to reduce the need for direct conflict."

9. MAKER SPACE

Makerspaces are a blend of design, engineering, fabrication and education. They are home to DIY projects and self-directed, passion-based learning. Maker spaces build creative communities of "makers" and connect classroom concepts to application.
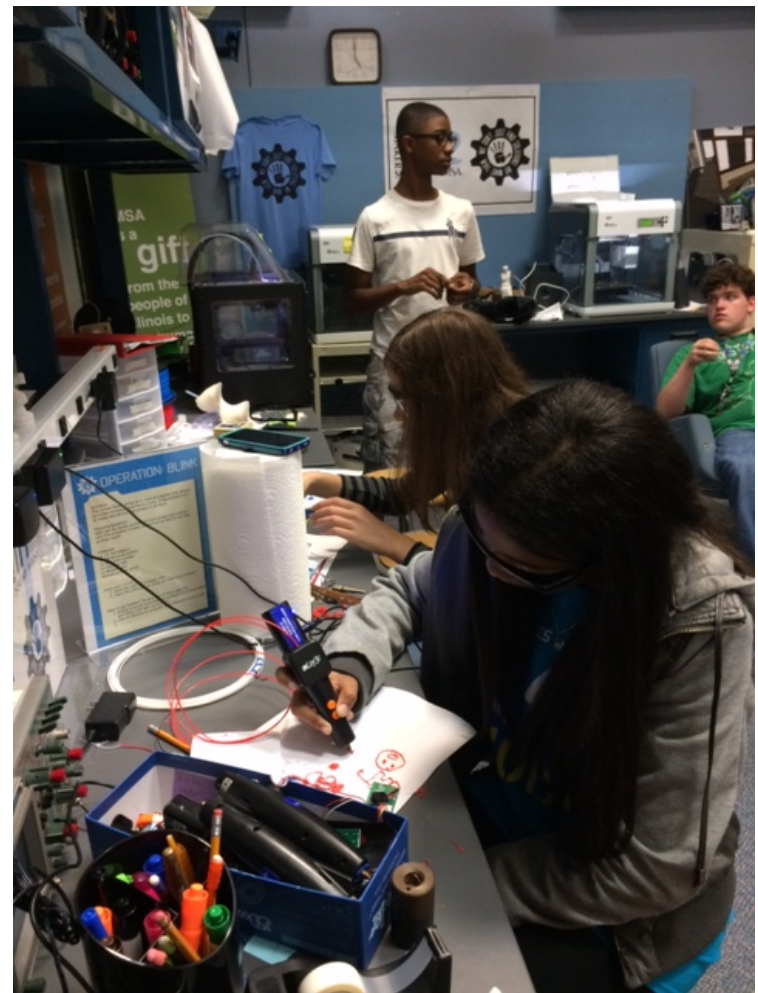
Community-oriented workspaces where people gather to share resources and knowledge, work on projects, network and prototype ideas.

creating HOMAGO spaces

(Hanging Out, Messing Around and Geeking Out)

"The character of a third space is determined most of all by its regular clientele and is marked by a playful mood, which contrasts with people's more serious involvement in other spheres. Though a radically different kind of setting for a home, the third place is remarkably similar to a good home in the psychological comfort and support that it extends…They are the heart of a community's social vitality, the grassroots of democracy, but sadly, they constitute a diminishing aspect of the American social landscape."

CREATING A "THIRD SPACE" FOR THE COMMUNITY
(RAY OLDENBURG, PH.D, PROJECT FOR PUBLIC SPACES)

10. DESIGN THINKING   HOW MIGHT WE…

CURRICULUM

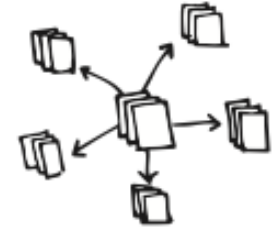get students excited about environmental sustainability?

SPACES

reimagine learning spaces to be more collaborative?

PROCESSES AND TOOLS

redesign the school day to better meet the needs of today's families?

SYSTEMS

connect our school more with the neighborhood community?

Design Thinking is a mindset. It's human-centered, collaborative, optimistic and experimental.

TEACHERSGUILD.ORG

Breakfast is over; it's time to design...

Inquire (pose burning questions or ponder pain points)

Ideate (brainstorm possible solutions)

Imagine (solution generation through rapid prototyping)

Identify (qualify solutions through rapid feedback)

Iterate (repeat cycle until you are satisfied)

Hi^5 hybrid design thinking model
{design thinking + human centered design (IDEO) + Lean Start Up}

DESIGN THINKING ACTIVITY

CURRICULUM

SPACES

PROCESSES AND TOOLS

SYSTEMS

HOW MIGHT WE…

STEP ONE: Inquire (pose burning questions or ponder pain points)

Hi⁵ hybrid design thinking model
{design thinking + human centered design (IDEO) + Lean Start Up}

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"Design is not just what it looks like and feels like.
Design is how it works."   - Steve Jobs

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Join me in the follow-up break out session to keep working...

You are now entering an innovation zone, proceed with your great ideas.

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Thank You!