In a world of increasingly rapid change, the half life of a given stock/skill is constantly shrinking.

**Stocks =====> Flows**
- protecting/delivering authoritative knowledge assets
- participating in knowledge flows
- creating new knowledge (strong tacit component)

- canons/genres relatively fixed
- genres fluid:

"Knowledge is no longer that which is contained in space, but that which passes through it, like a series of vectors, each having direction and duration yet without precise location or limit.

In the future, it seems, there will be no fixed canons of texts and no fixed epistemological boundaries between disciplines, only paths of inquiry, modes of integration, and moments of encounter."

-- Carla Hesse

Too Big to Know:
By david Weinberger ( Jan, 2012)

We used to know how to know. We got our answers from books or experts. We’d nail down the facts and move on. We even had canons.

"But in the Internet age, knowledge has moved onto networks. There’s more knowledge than ever, but it’s different. Topics have no boundaries, and nobody agrees on anything."

We all agree on the increasing value and significance of the sciences and technology to work on large scale problems and for our position of competitiveness in the world.

But is this sufficient?
Provide access to clean water
Restore and improve urban infrastructure
Advance health informatics
Engineer better medicines
Reverse engineer the brain
Prevent nuclear terror
Secure cyberspace
Enhance virtual reality
Manage the nitrogen cycle
Advance personalized learning
Engineer the tools of scientific discovery

But each of these challenges requires an interdisciplinary approach, socio-technical in nature.
Are we preparing our students for such?

In an era of complexity and large-scale problems we need to move from problem solving as an engineering approach to design from an eco-systemic perspective.

No significant problem is an island to itself... where the unintended consequences to an action can often overwhelm the intended consequences.

“We begin to understand the interconnectivity of everything from both the ecological perspective and from the human perspective”

Ann Pendleton-Jullian

We need more than just the skills of learning how to learn, systems thinking or even eco-systemic thinking.
It requires new dispositions

Warning: dispositions can’t be taught. But they can be cultivated in the right settings. (libraries, labs, seminar rooms, studios)

We are, our selves, prepared?

Dispositions of an Entrepreneurial Learner

CURIOUSITY – pulling information on demand

QUESTING – seeking, uncovering, probing ..

REFRAMING – a beginners mindset

CONNECTING – listening/engaging others.
And to afford curiosity in a networked age.

Arc of life learning
Honoring both the child & the adult: cultivating curiosity in each of us.

Perhaps we need:
New approaches to learning,
New practices,
New approaches to thinking/acting.

What we need to do for our students:
Cultivate a resilient mindset in our students – an ability to change, adapt, re-conceptualize and engage in deep listening with humility in an act-reflect, provisional loop.

What can we learn from (arch) design practice:
Design as inquiry is a way of seeing the world. It is a way of discovering the interconnectedness of things.

Designers are by nature entrepreneurial and opportunistic
They see to act.
They act to see.
Head and Hand

The Architecture Studio—focusing more on learning-to-be

Interweaving thinking and doing
Thinking with both head and hand
The Architecture Studio—
focusing more on learning-to-be

In an environment of permission – to try, to fail – over and over again in the company of others

The Architecture Studio—
as a collective learning experience

With both master & peer critiquing.

developing a disposition for receiving/giving critiques

Critique is different than criticism.

It is a socio-temporal process – a pervasive way of operating.

It is a mechanism for attaching thought to action. It is an agent of inquiry

Critique in a design setting is intended to generate forward movement.

Ann Pendleton-Jullian

A Blended Epistemology

**Homo Sapiens**  \(\rightarrow\) **Homo Faber**

man as knower man as maker

c content/things

The Big Picture
A Blended Epistemology

Homo Sapiens  Homo Faber
man as knower  man as maker
content/things & context

Given that meaning emerges as much from context as content, new dimensions to the creation of meaning are opened.

Ah, the essence of remix.

Ah, let me change the music of a film and I can alter not only its meaning but also what you actually “see”.

Ah, in a fluid world judgment and critical thinking is more important than ever... and librarians as mentors become even more important.

We used to focus on content, assuming context was relatively stable. But in the world of social media & networked knowledge context is more fluid.

Consider blogging & remix.

Blogging as joint context creation

“The blogger is—more than any writer of the past—a node among other nodes, connected but unfinished without the links and the comments and the track-backs that make the blogosphere, at its best, a conversation, rather than a production.”

Jazz and blogging are intimate, improvisational, and individual—but also inherently collective. And the audience talks over both.

Andrew Sullivan – Atlantic Monthly/ The Daily Dish

Returning to the grand challenges

“Each of these challenges requires a socio-technical, interdisciplinary approach.”

socio ~ technical

context  content/thing

Ah, architectural design focuses on both content and context and their synergistic interplay.

(as in landscape architecture + urban design)
Eco-systemic Design
With tools and methods for designing/shaping both context and content

Wicked Problems
Complex systems that are constantly evolving with each attempt to understand or solve it.
Best thought of as an environment, not an isolated problem.
socio ~ technical

Design as a platform for working on the world:
Transformative Resonance

Design as a platform for working in the world:
Creating Resonance
{socio ~ humanistic} ~ technical

Our Challenge:
not either/or but both/and simultaneously

This means that the humanities are more important than ever.

bridging CP Snow's two cultures

Being able to work simultaneously and effectively both ON and IN the world.
may be the bridge between C.P. Snow's two cultures
and an approach to constantly evolving wicked problems.

Find out more about any of these Grand Challenges:

What would the grand challenges put forth by the American Academy of Arts and Sciences look like?

where imaginations play learning happens!

A New Culture of Learning
inherently androgynous
science-tech + humanities
But
we must create environments
where the enterprise pulls
the relevant skills/disciplines/perspectives
into collective action and efficacy.

Easier said than done, jsb.
What are these environments?

A belief
In a world of constant change
entrepreneurial learners must also be
willing to regrind their conceptual lenses.

And for this play is essential.

Homo Ludens
a highly nuanced concept of play
• as in freedom to fail, fail and fail again and
then get it right: think of extreme sports!
• as play of imagination – poetry
• as in an epiphany – suddenly falling in place
  as in solving a riddle.

Learning as riddles,
leading to a reframing or
re-registering of the world.

Play is the progenitor of culture & innovation.
Johan Huizinga

Our current weighting:

Suggested weighting for a constantly changing world

Knowing what
Man as knower

Making things + context
Man as maker

making sense ----> epiphanies
Connecting the dots ----> reframing

Man as player
Blended Epistemologies

homo sapiens  knowing

homo faber  making

Cultivating the imagination
Thru 'what-ifs'

playing
homo ludens

Play is a space of invention and permission

based in reality but different than reality,
play is a release from normal physics and consequences.
play creates a space to try out new things.

both play and design bridge
research and learning –
focusing on both/and not either/or

Learning through riddling/research that creates learning efficacy of enormous proportion.

both play and design bridge
research and learning –
focusing on both/and not either/or

Both are comfortable with ambiguity.
Both work through riddling.
Both work through provisional 'what-if's to construct possible solutions/new worlds to test against the real world.

an ambidextrous environment (research and learning hand in hand)

where imaginations play learning happens!

A New Culture of Learning

inherently androgynous science/tech + humanities

In an ambidextrous environment (research and learning go hand in hand)

Thank You

A New Culture of Learning – cultivating the imagination for a world of constant change.
Douglas Thomas & JSB

Design Unbound (2012)
Ann Pendleton-Jullian & JSB

Sketches by Susan Haviland