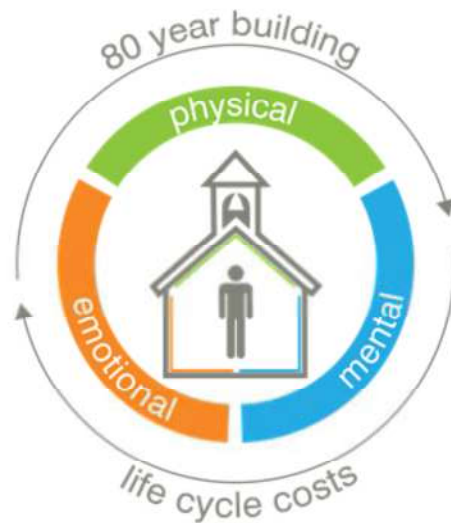# introduction

- General welcome.
- Introduction of presenters.
- Announce purpose and goals of the seminar.
- AIA et. al. continuing education information.

What is a healthy school?

- it is about the user

- three general criterial

- must function throughout the life cycle of the building (sustainable)

- healthy school building as an organism

What is a healthy school?:
- We measure the "healthiness" of a building measuring its positive or negative affect on the users of the building.
- Three sides to a health school all viewed through the lens of the user – physical, mental and emotional.
- These qualities of a healthy school must be sustainable for the longevity of the building – generally 50+ years.
- It can be helpful to think of a healthy school as an organism.
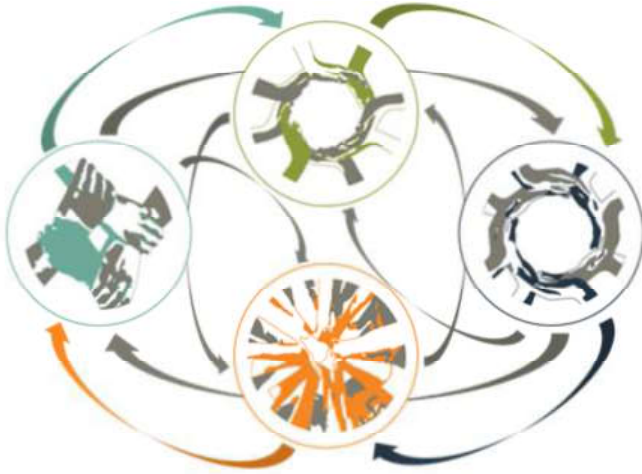
School building design.

- school design is communal in nature

- stakeholders are the students, district, design / construction team, and community

- each step in the process is informed by another step

- the process is rarely linear

- input can come from everywhere

School Building Design:
- Explain the communication pattern needed for co-design of educational buildings. "Your best idea is in someone else's head."
- Design is, in part, the art of balancing priorities.

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Balancing Priorities / Tradeoffs | function aesthetics budget

Balancing Priorities / Potential Tradeoffs:

- In its most basic form – building design is a balance of function, aesthetics, and budget.
- In school building design, the budget is almost always fixed.
- So to some degree every other design decision is a potential tradeoff against another, although some compliment each other instead of oppose.

The brain's role in making decisions. | pathological thinking

- over emphasize relationships within a category

- under emphasize relationships in different categories
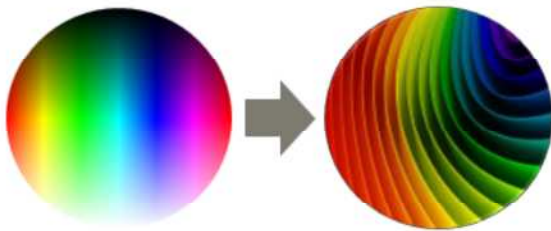
Decision Making Under Duress:

- The brain is a pathological machine. One of our great talents that makes us human is our ability to recognize pattern.
- This is an asset and a curse. It has enabled the evolution and creation of civilization and culture. But it is also the seed of bigotry, overreaction, and single mindedness.

balance

School building design under duress.

balance

prioritization

Decision Making Under Duress

- Explain the communication pattern needed for co-design of educational buildings. "Your best idea is in someone else's head."
- Design is, in part, the art of balancing priorities.
- Our ability to balance priorities is based on our perceptions. Perceptions can be colored by traumatic events.

balance   imbalance

School building design under duress. | balance

prioritization

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Co-Design and Consensus Building

- two sets of experts needed for school design

- historic bias challenge

- proximity of traumatic events (time and location)

- severity of recent events

Co-Design and Consensus Building
- School design is extremely complex. Today schools are more than educational centers, they are athletic event centers, arts event centers, day cares, voting centers, community meeting centers, restaurants, symbols of the community, and with the expansion of high wind and FEMA shelter design, disaster triage centers.
- School design requires design and construction experts as well as educational experts. Without good communication between both sets of experts the project will fail to reach its fullest potential.
- There are challenges. Let's watch a video about a community that faced all of these challenges at once.

The Story of Joplin

- The city of Joplin was devastated by a deadly F5 tornado.
- The community used the replacement of the educational facilities as a rallying cry to stabilize and heal the community.
- Long after the initial recovery there was still work to be done.
- The School District seized the opportunity, not simply to rebuild – but to grow.
- How did they do this?

How do we ensure we are balancing our priorities correctly when we fear the worst?

Communication and Prioritization Tools

- organized intentional processes
- good information
- time as an enabler

EDS

KEEP
CALM
PRACTICE
MAKES
PERFECT

Communication and Prioritization Tools
- In times of duress or when considering extreme circumstances, communication and prioritization tools help us keep perspective.
- We must intentionally identity and prioritize

Tour book cover

Communication and Prioritization Tools

exposure tools
information mining tools
visioning tools
ranking tools

EDS

Communication and Prioritization Tools
- Exposure tools are key to understanding new possibilities and releasing us from our historic bias.
- Tours are best when possible.

Communication and Prioritization Tools

exposure tools
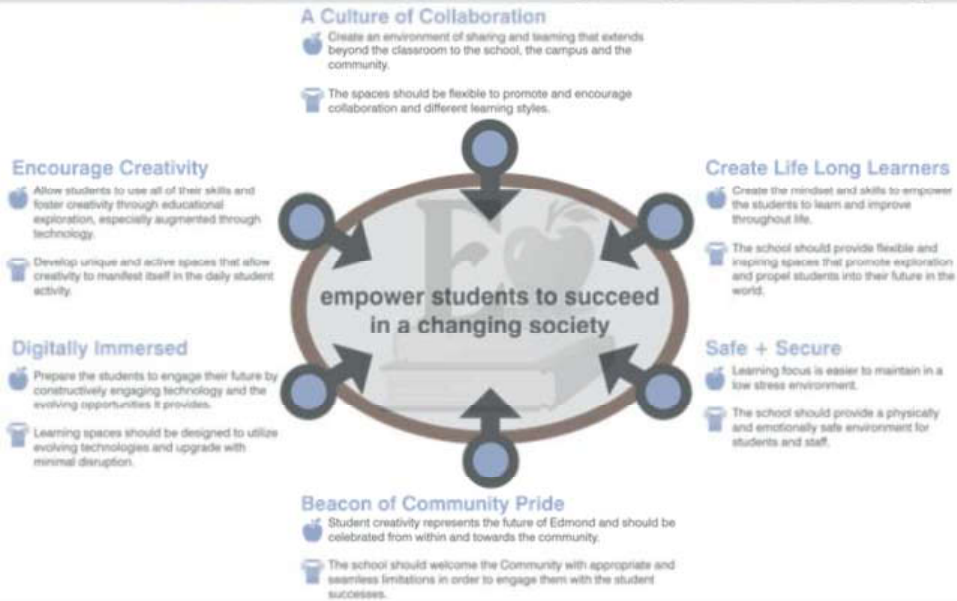**information mining tools**
visioning tools
ranking tools

discoveryactions empower students to succeed in a changing society

Communication and Prioritization Tools

- Information mining tools deal with gaining an understanding of the unique functions of a particular school building. These are different for every district.
- Explain discovery action tool and how it informs design / prioritization.
- Note that no where on the light bulb in an action describing taking shelter from a storm or intruder.
- This tool focuses the group on the every day actions taking place in the school and help balance priorities.

Communication and Prioritization Tools
- Visioning tools establish the broadest goals for a project and can help keep perspective those things that may override the true purpose of a school building – for students to learn and grow.
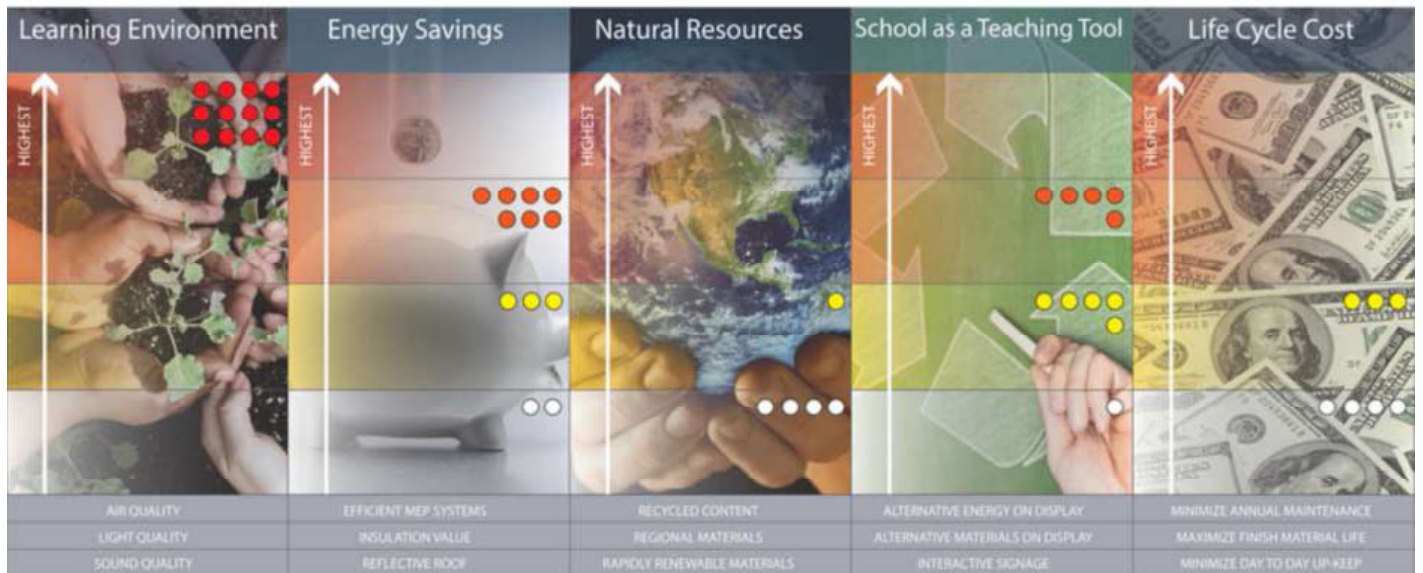
Learning Environment	Energy Savings	Natural Resources	School as a Teaching Tool	Life Cycle Cost
AIR QUALITY	EFFICIENT MEP SYSTEMS	RECYCLED CONTENT	ALTERNATIVE ENERGY ON DISPLAY	MINIMIZE ANNUAL MAINTENANCE
LIGHT QUALITY	INSULATION VALUE	REGIONAL MATERIALS	ALTERNATIVE MATERIALS ON DISPLAY	MAXIMIZE FINISH MATERIAL LIFE
SOUND QUALITY	REFLECTIVE ROOF	RAPIDLY RENEWABLE MATERIALS	INTERACTIVE SIGNAGE	MINIMIZE DAY TO DAY UP-KEEP

Communication and Prioritization Tools

exposure tools
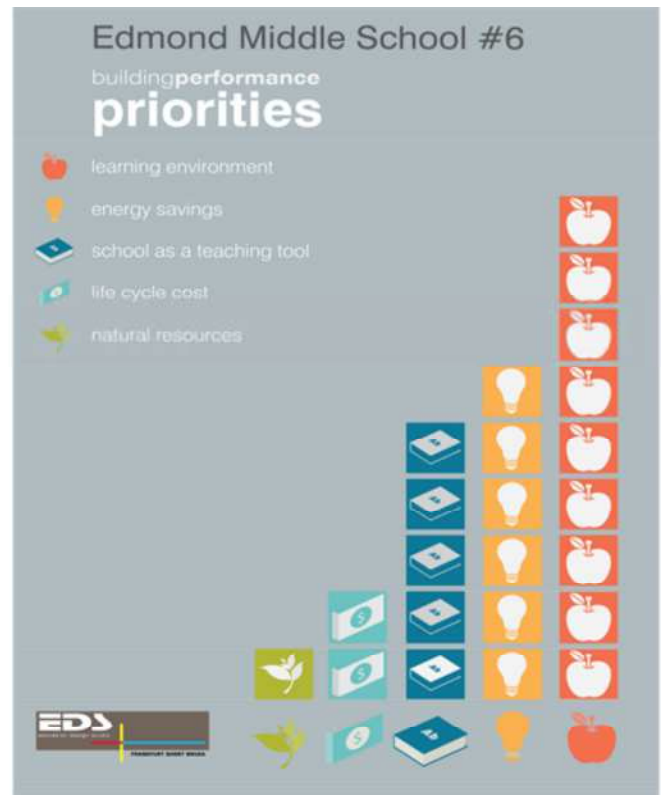information mining tools
visioning tools
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Communication and Prioritization Tools
- Once the exposure, information mining, and visioning tools have created an accurate knowledge base and common language for our two sets of experts to communicate – we can finally prioritize via ranking tools.
- This is an example building performance priorities (building systems and design issues that affect the quality of the indoor environment).
- This can be

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- This is an example building performance priorities (building systems and design issues that affect the quality of the indoor environment).
- This can be done for any number of different programmatic, performance, or budget related unknowns.

Case Study: Jayhawk
- Small, cash strapped district needing additions to ES and HS.
- Goal was to update dilapidated facilities and update student safety from acts of people and nature.
- Sandy Hook occurred during bidding…

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Case Study: Joplin – Soaring Heights Elementary and East Middle School

- The city of Joplin was devastated by a deadly F5 tornado.
- The priority of the projects added another layer of importance beyond simply replacing school buildings with safer structures.
- The goal of the project was to galvanize a community to provide hope and stability through a comprehensive innovative educational change – this school would not look like the previous.

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- The Moore OK tornado struck during early design.

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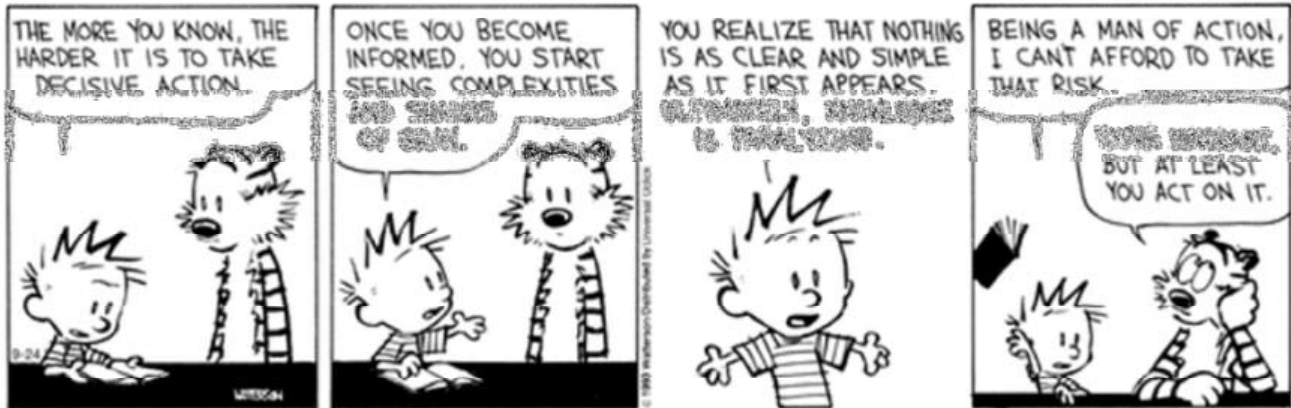
What are we missing? | The value of research.

The Value of Research
- Appeal to analytical thinkers in the audience. Ryan is from the Show Me State (MO)
- Calvin is flustered that answers to complex problems can't be solved like a simple math problem. He decides to justify giving up and relying on convention and historical precedent.

The Value of Research
- Calvin expresses the position that ignorance is bliss appealing to the primordial "reptile brain" in all of us.
- Sometimes instead of denial we actively fight against accepting new knowledge. Information Aversion…
- This is an inherent human trait and nothing to be ashamed of – but rather of which to be aware.

Evidence Based Design

- inform our decision making
- illuminate false biases

Evidence Based Design
- Good research can help increase our specific and general knowledge.
- For instance structural hardening incurs a 20% premium while building to full FEMA specifications is a 40% premium over the base line.
- We know this from experience – but even the most experienced of us have only been involved in dozens of projects – how accurate is the data?
- Research can deepen our knowledge to enable us to make better choices.

Evidenced Based Design

- quantitative correlations
- qualitative context exposure
- identification of trends vs. fads

Evidence Based Design

- Research takes time.
- If done well, it can lead to data that can shed light on quantitative correlations, qualitative context exposure and the identification of trends and fads.
- Heppi Wachter and Lisa Holliday from the University of Oklahoma are going to explain their grant and purpose of their research.

research introduction

- EPA grant summary + goals
- existing and new schools
- timeline

Learn how parents, community members, teachers, administrators, architects, engineers and others would benefit from research and design tools that illustrate and support modeling of healthy school environments.

Share your expertise.
- It is not often this amount of educational expertise is gathered in one room. We are going to walk you through a few exercises to help inform our research moving forward.
- These are going to be data gathering exercises. The information we get will be shared with the conference on our website once it is compiled, so be sure to check that out in a few weeks.
- We've got two ways of doing this – analog and digital.
- Walk through the device set up (Poll Everywhere)

exercise I

- data gathering exercise
  - what are the variables considered in a healthy school?
  - physical health + mental health + emotional health

Conceptualize and frame the idea of a "healthy" school building.

exercise II

- data gathering exercise
  - what are the potential tradeoffs from a "healthy" school from structural hardening?

Gain an understanding of trade-offs, between structural hardening, sustainability, and environmental quality.

exercise summary

- summarize the knowns
- summarize the unknowns
- illustrate the potential for research
- website prompt

Learn how parents, community members, teachers, administrators, architects, engineers and others would benefit from research and design tools that illustrate and support modeling of healthy school environments.

Gain an understanding of trade-offs, between structural hardening, sustainability, and environmental quality.

closing

- thank you
- questions and any further discussion

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