How to win the hearts and minds of learners

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Essential Questions

- What do we know about the science of learning?
- How does that shift our thinking about current educational practices and policies?

Design task

- Cull together a powerful set of learning principles based on research
- Connect the learning principles to the SLMPE Rubric and AASL Standards

Posted by Liza

- "Schools have been caught in an unsustainable strait jacket: after the summer break, elementary children are not back up to their spring performance levels until about November. Then, after Christmas break, we are in test-prep mode. After March testing, everyone is burned out, and we coast. The school climate has become one of pressure, frustration, boredom, and a wasteland of fragmented facts—like the Great Pacific Garbage Patch. Each year the gap between the privileged and under-privileged widens, and it becomes harder and harder to teach to such a varied group. Those who struggle most and those who are most gifted must endure, painfully."

Unpacking where we need to go to

- Big picture: meaning, then details
- Producing meaningful work: personalized, driving questions, communication (role of teacher as feedback and showing incremental progress)
- Every child engaged as learners: responsive teaching and learning, different products with a common rubric

From F. Scott Fitzgerald

- “The test of a first-rate intelligence is the ability to hold two opposing ideas in mind at the same time and still function.”

What the brain does naturally

- Inherently curious
- Seeking patterns and connections
- Innately social and collaborative

From Judy Willis

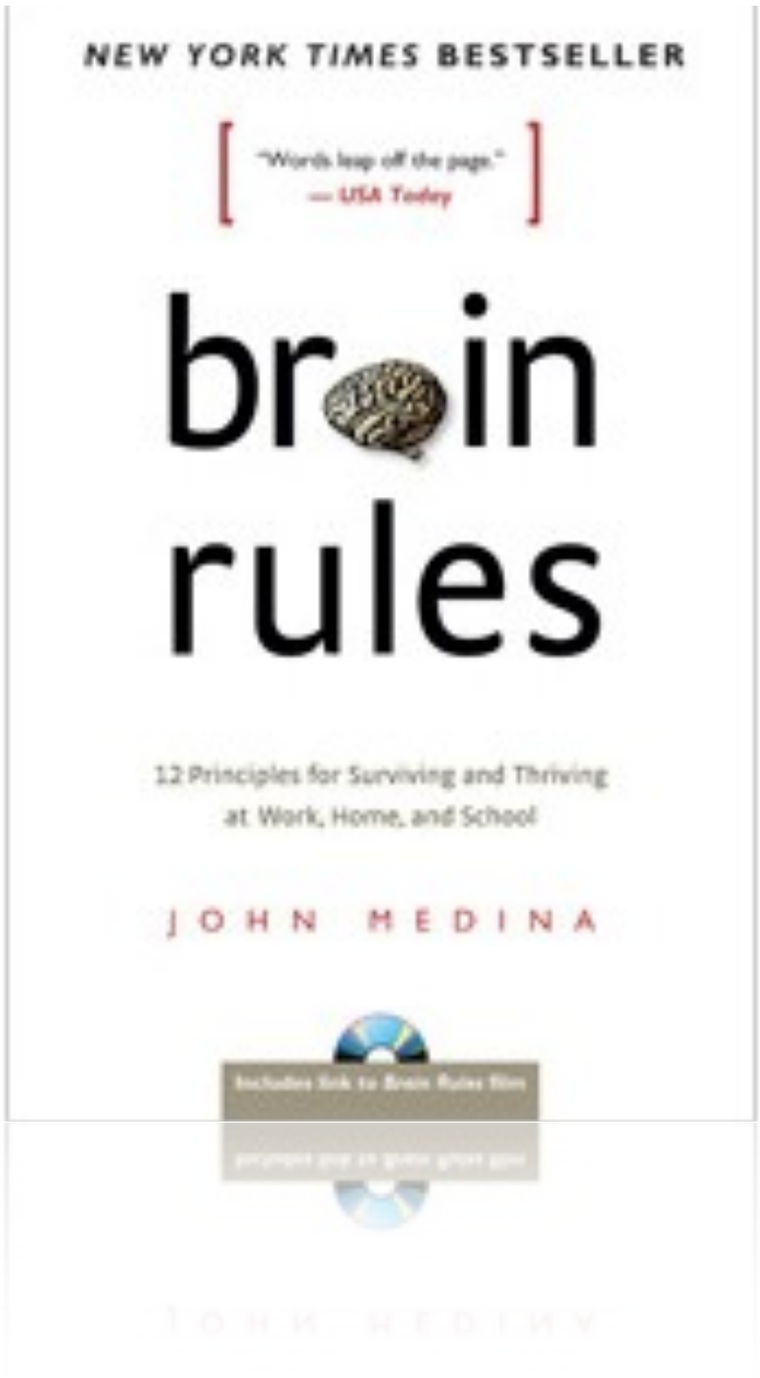
- "As we know from neuroplasticity research, almost every part of the brain is influenced by experience. The use it or lose it rule of neuroplasticity applies Teachers who incorporate active use of higher-thinking skills in their instruction influence these most powerful powers of reasoning, analysis, and creative intelligence."

From *Brain Matters*

- "Studies show that a person who is interrupted takes 50 percent longer to accomplish a task. Not only that, he or she makes up to 50 percent more errors."

Brain Rules

www.brainrules.net



Working memory explained

Attention

Interest | Emotion

Engagement

Importance | Efficacy

From *The Engaged Classroom*

- Attention is the gatekeeper.

- Attention comes and goes as a function of students' emotions and interest level.

From *The Engaged Classroom*

- What gets and maintains students' attention does not necessarily keep them engaged.

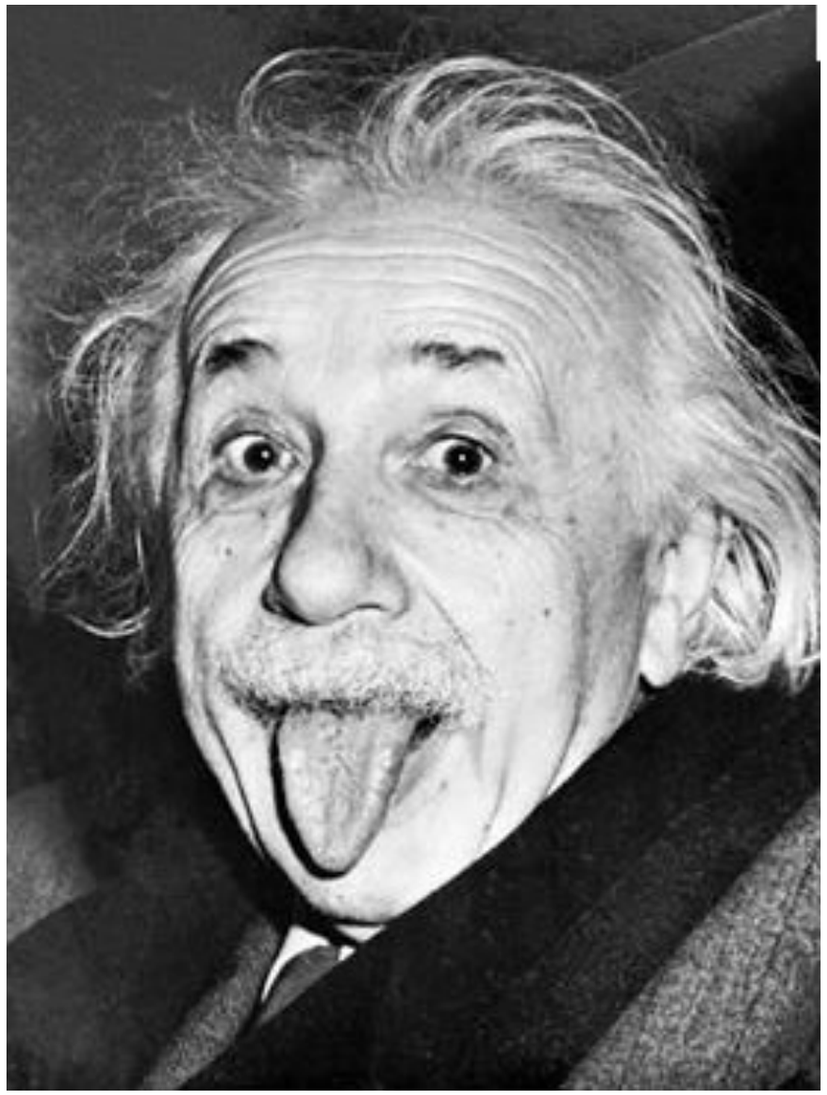
- Teachers must attend to students perception of importance and efficacy to achieve engagement

Develop an unbound curiosity.

- Practice wonder.

Albert Einstein

- "Curiosity has its own reason for existing. One cannot help but be in awe when he contemplates the mysteries of eternity, of life, of the marvelous structure of reality. It is enough if one tries merely to comprehend a little of the mystery every day."



From Valerie Diggs

- "It is our job, alongside the classroom teacher, to offer our students today the opportunity to think critically and develop personally meaningful questions through inquiry-based units. It is through such experiences that students construct questions to answer that they really want to answer, questions that will lead them to t turning information into knowledge, and, subsequently, that knowledge in to wisdom for a lifetime."

Research on engagement

- IMPORTANCE: Is this important?

- EFFICACY: Can I do this?

Engagement

- “Much of the discourse... has been about disengagement on adult terms; engagement as defined by politicians, policy makers, and perhaps some teachers and parents. But tackling disengagement effectively means taking the time to understand what children and young people themselves find engaging... placing student voice at the centre of what they do.”

—Sodha & Guglielmi, 2009, p. 25

From *Learning First*

Our working definition of deep engagement, developed in consultation with our students, is that it is learning which occurs when the learner:

- cares not just about the *outcome*, but also the *development*, of their learning
- takes *responsibility* for their learning
- brings discretionary energy to their learning task (s)
- can locate the *value* of their learning beyond school, and wishes to *prolong* their learning beyond school hours

"How can I possibly teach such a range of learners?

- "When my students are engaged in a project, the problem seems to go away as I attempt to help each child improve, wherever he or she is." — *Ben Daley, High Tech High*

Why differentiation is unavoidable

- " No two children are alike. An enriched environment for one is not necessarily enriched for another. " — *Marian Diamonds, Professor of Neuroanatomy at Berkeley*

Practical strategies

- Apply
- Connect
- Cognitive challenge

Attributes of deep engagement

- *Placed:* it reaches, and has relevance to, students in the space that they inhabit, connecting with the student's family/community and interests outside school

- *Purposeful:* it absorbs the student in actions of practical or intellectual value, fosters a sense of value and agency, and invites students to behave as proto-professionals

- *Pervasive*: it extends beyond examinations, is supported by family and peers, and can be extended through independent (and inter-dependent) informal learning

- *Principled:* it appeals to the student's passions or moral purpose—it matters to students

Connections from AASL Standards and SLMPE Rubric

(C) Curiosity

(E) Efficacy

(O) Ownership

(NL) Network of learners

(NL) Network of learners

INQUIRY

- (Ex) Explore multiple perspectives
- (Th)Think deeply to make connections
- (Ev) Evaluate accuracy and validity

(CE) Creative expression
(NU) New (and/or deeper) understandings

SLMPE Rubric

Instructional Design	O, EX, TH, EV
Information Literacy	O, EX, TH, EV, NU
Reading	NL, C, O, TH, NU
Assess for Learning	E, O
Teaching for Diverse Learning Needs	NL, C, CE
Inquiry Learning	NL, C, E, O, EX, TH, EV, NU
Social Learning	NL, C, EX, TH, NU
Social Responsibility	NL, C, O, EX, TH, EV,

AASL Standards

1. Inquiry	NL, O, C, EX, TH, EV
2. Draw conclusions	O, TH, CE, NU
3. Share knowledge	NL, O, CE, NU
4. Pursue growth	NL, C, O, EX, TH, EV, CE

Where do projects come from?

- “So, where do projects come from? My answer is this: they are born in the places we love to visit, the things we love to see, the tasks we love to lose ourselves in. They are the things we find exciting. They are the things we deem worthy of writing essays and graphing charts about. They come from teachers who fall in love with something and decide to share that something with their students.”

Bounded freedom

- While project-based learning and activities that go beyond school can be liberating for staff and students, it is important that activities incorporate a sense of *bounded freedom*—that students are given a clear set of guidelines, procedures or protocols within which they can make choices. As one Year 9 student put it: “I’d like to have a little bit more of a say, but...I think you need the teacher there to sort of guide you.”

Physics Cornerstone

- Choose a three- to five-minute clip from a movie or cartoon. Look for examples of correct physics or scenes where the laws of physics are violated. Make measurements and use physics equations to demonstrate why the scenes in the segment are not physically possible. You will be presenting to a panel of students, faculty members and scientists from the community.

Math cornerstone tasks

- Requires collaboration and teaching of collaboration skills
- Requires active participation from the teacher without coopting their work

Digital Portfolios

- http://www.hightechhigh.org/digital_portfolios.php

From *Brain Matters*

- "Memory is enhanced by creating associations between concepts... If we can derived the meaning of the words to one another, we can much more easily recall the details."

Take it for a test drive

- Do a mind map
  - Core concept
  - Key details

Design a learning segment around that

- Core concept (1 minute explanation)
- Key details (9 minutes of elaboration
- Paired with a relevant hook that triggers emotional response
    - Controversy
    - Novelty
    - Stories