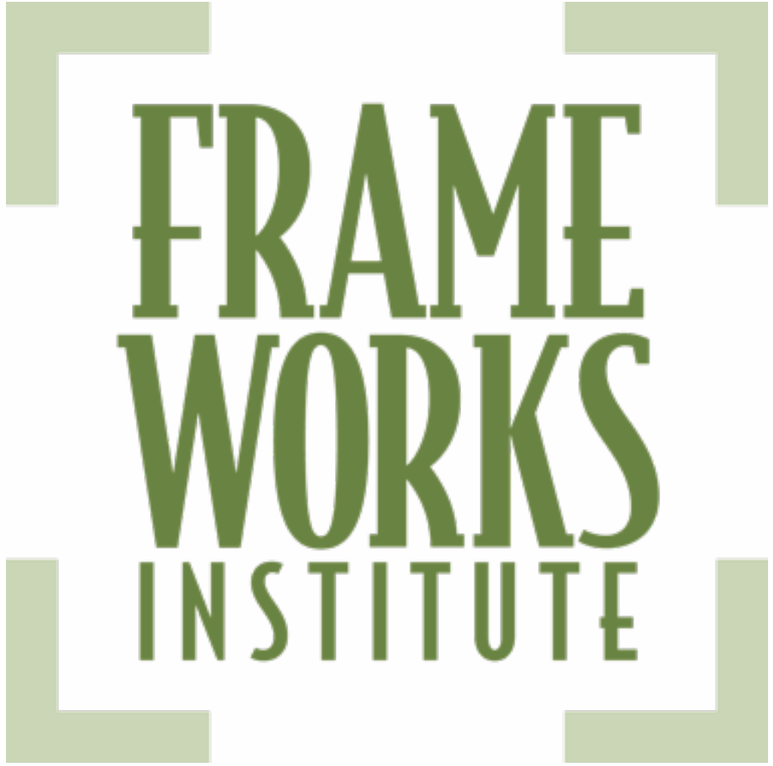
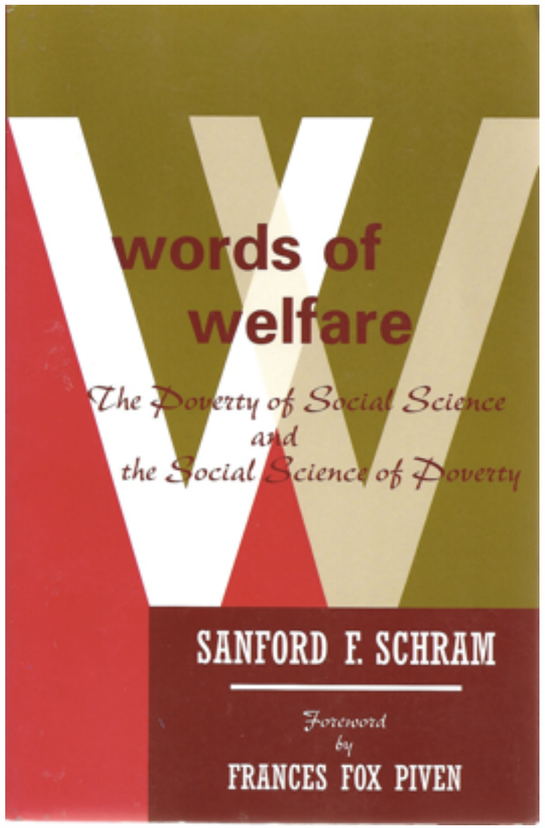
Framing the Conditions for Successful STEM Learning



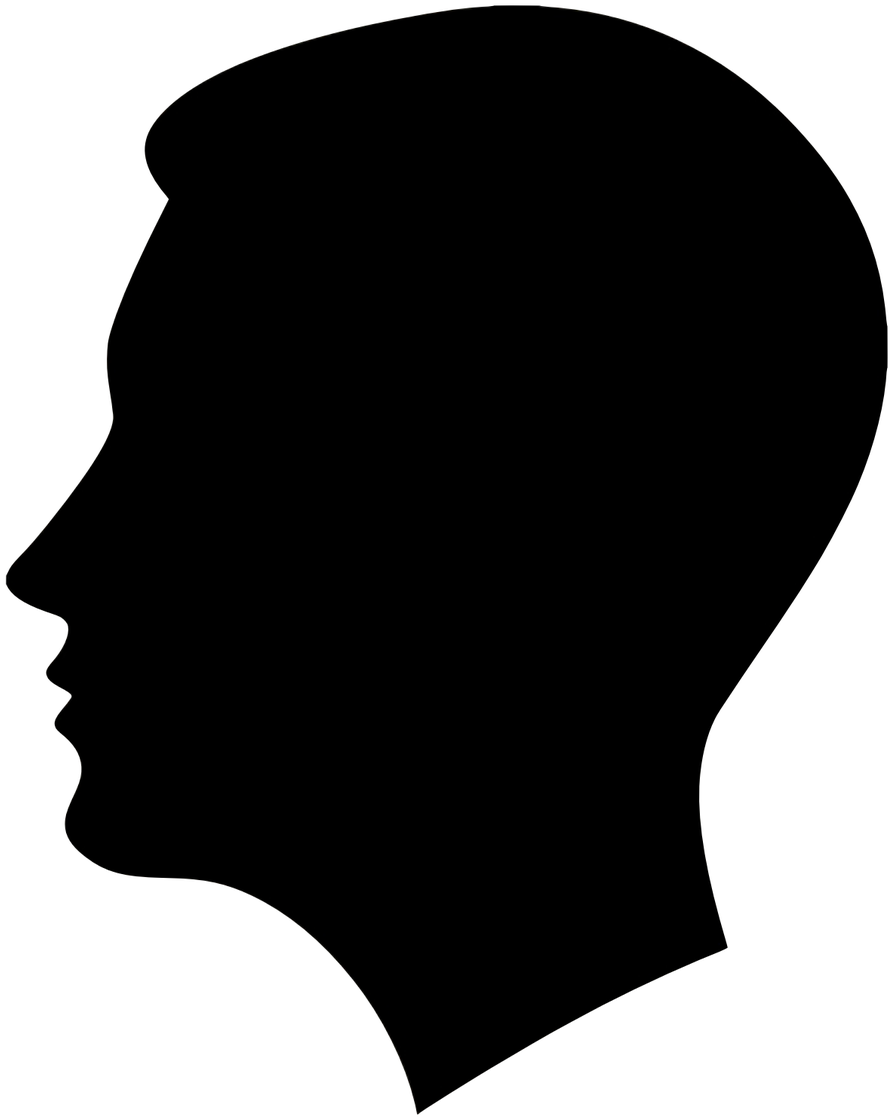
Nat Kendall-Taylor - *Vice President for Research*

Policy and Understanding

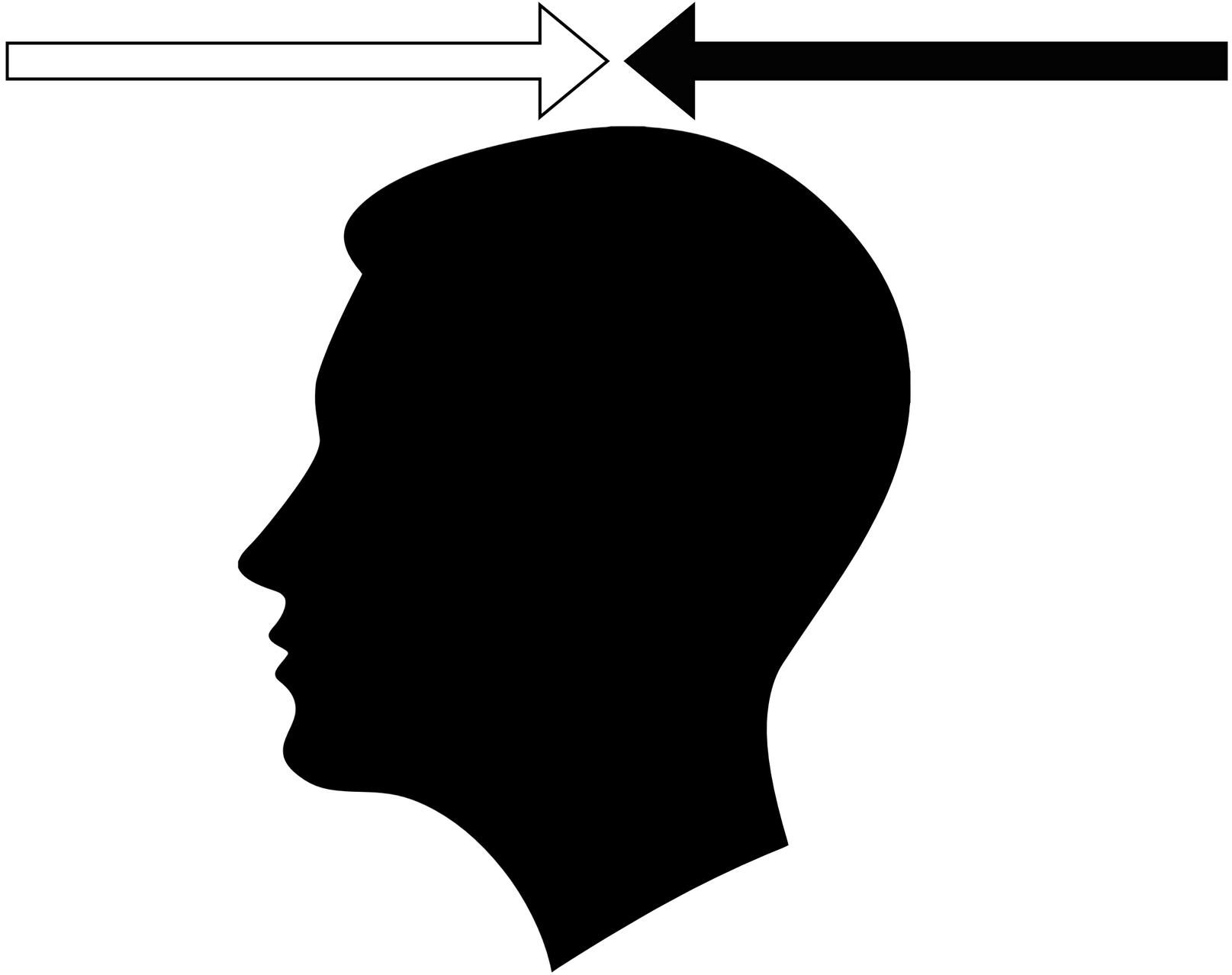


"...the initiation, contestation, adoption, implementation and evaluation of any policy is shaped in good part by the discursive, narrative, symbolic and other socially constructed practices that structure our understanding of that policy..."

Sanford F. Schram, Words of Welfare, 1995



Public Discourse



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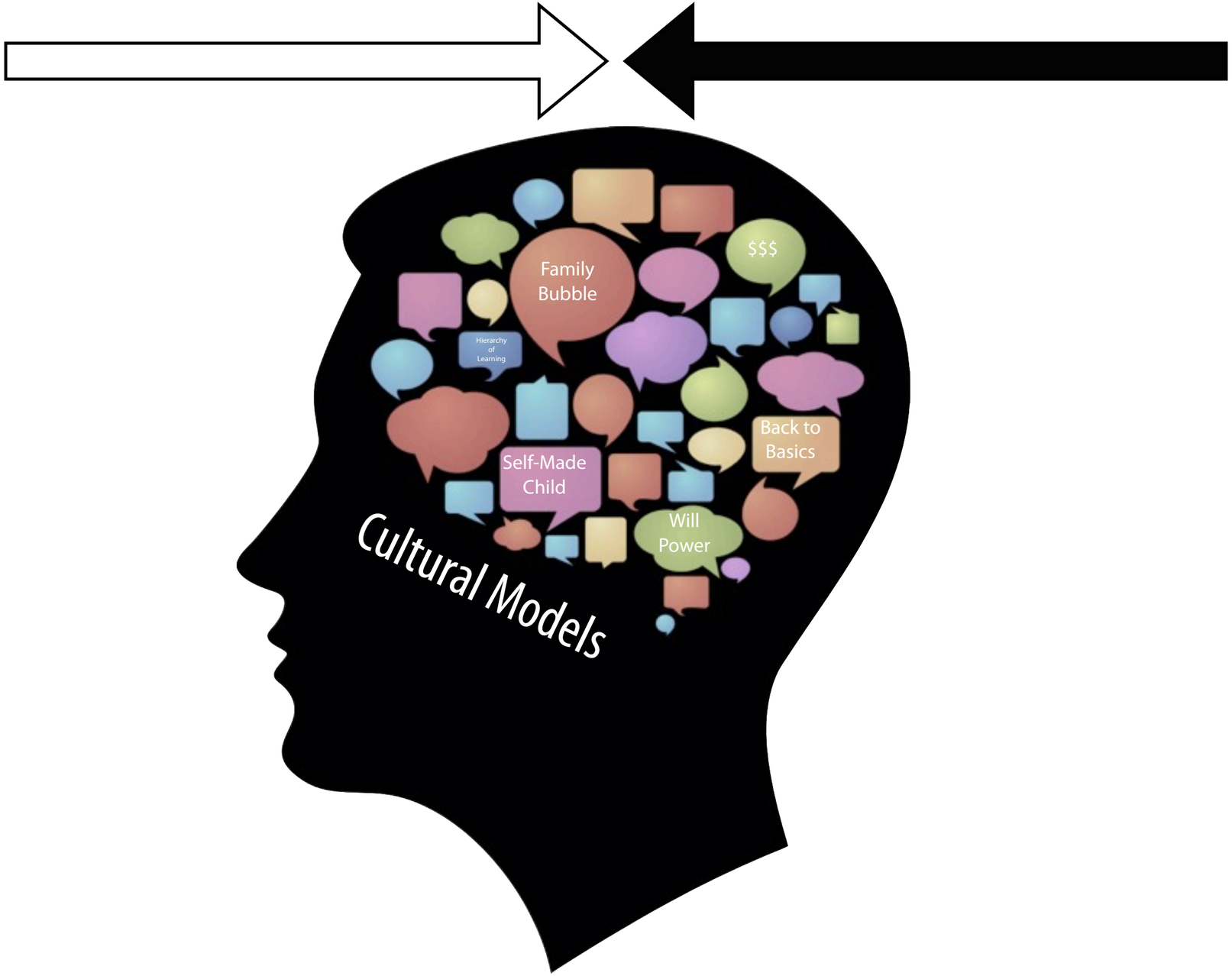

Frames

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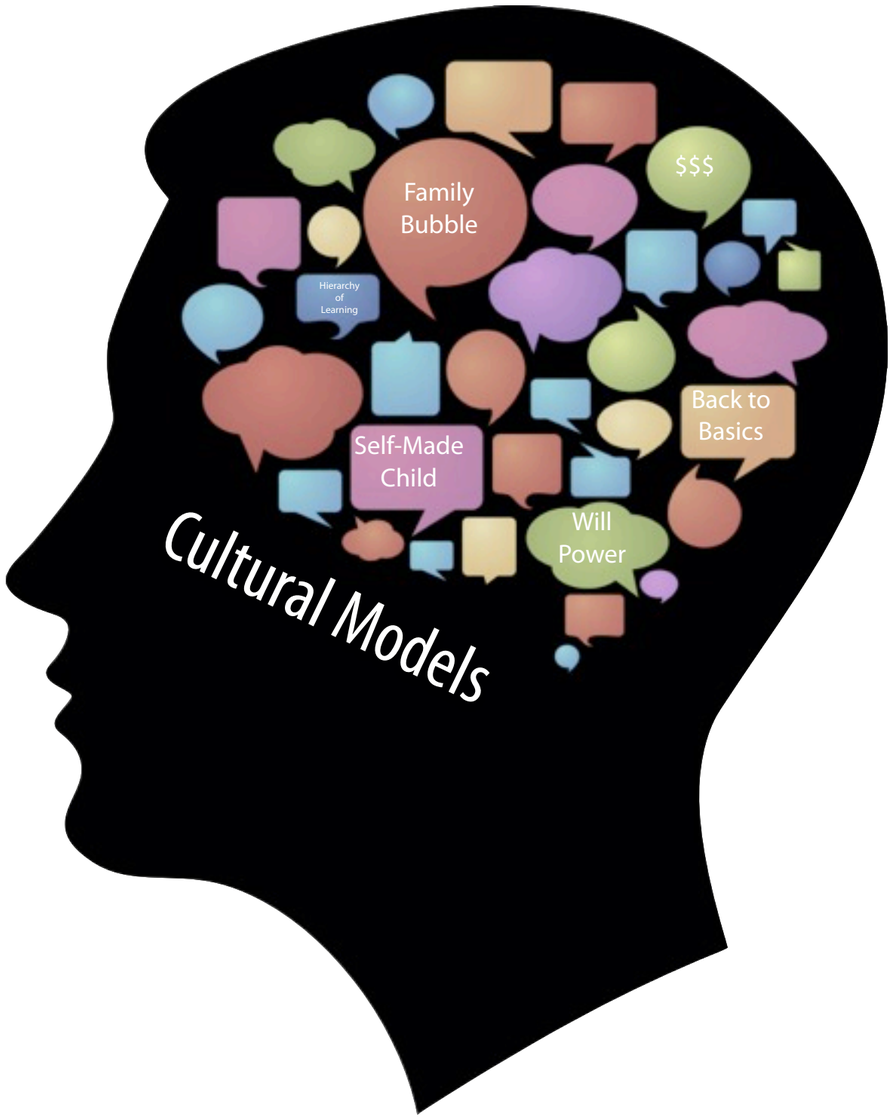

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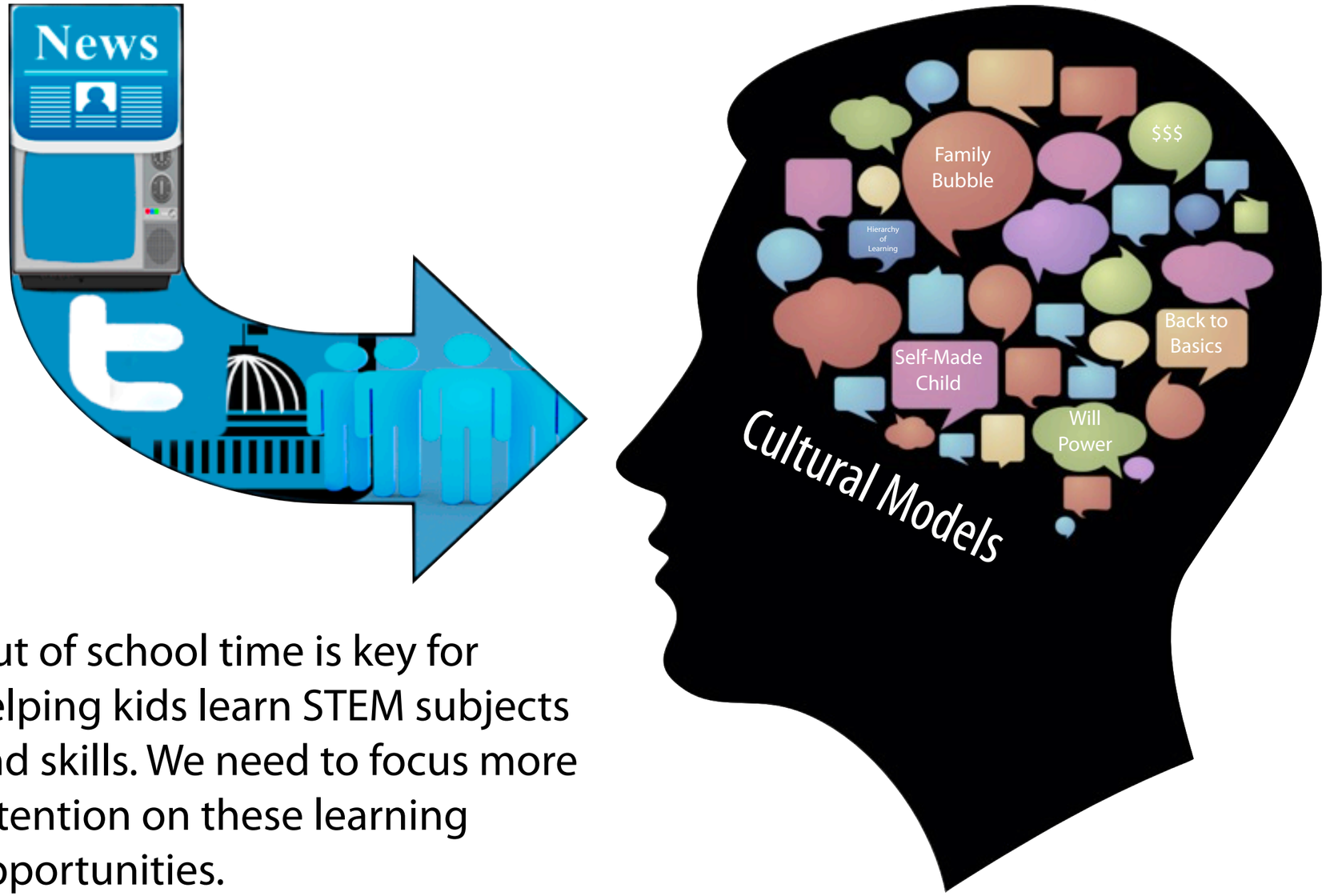

Out of school time is key for helping kids learn STEM subjects and skills. We need to focus more attention on these learning opportunities.

Public Discourse

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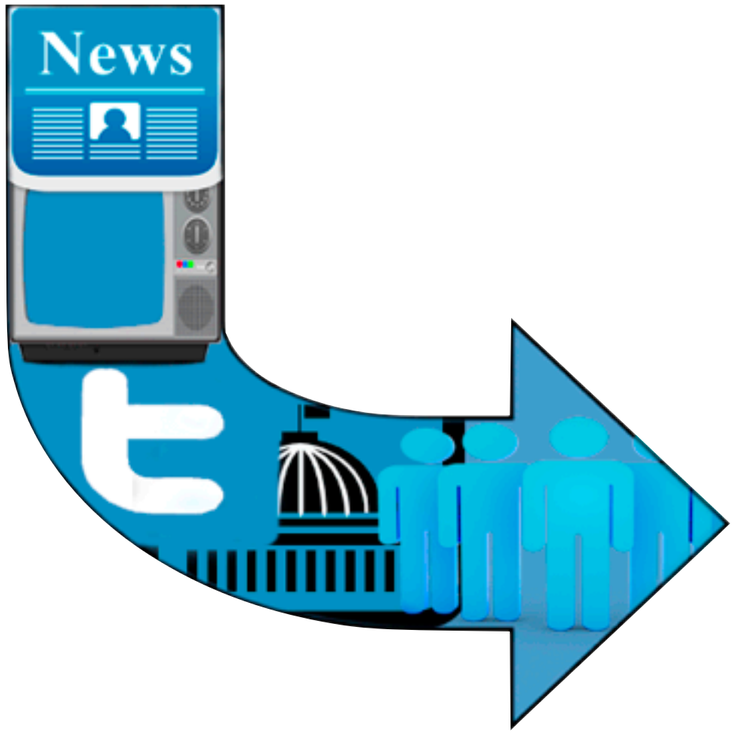

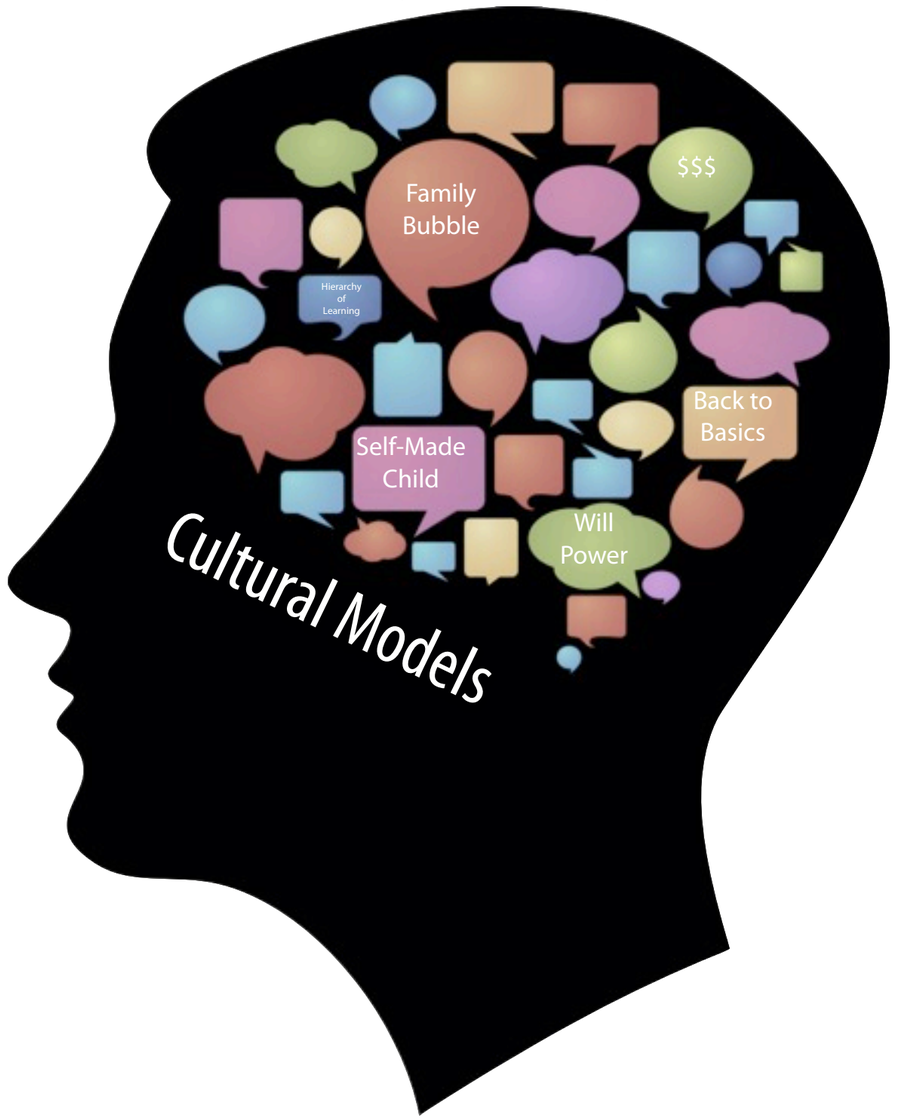

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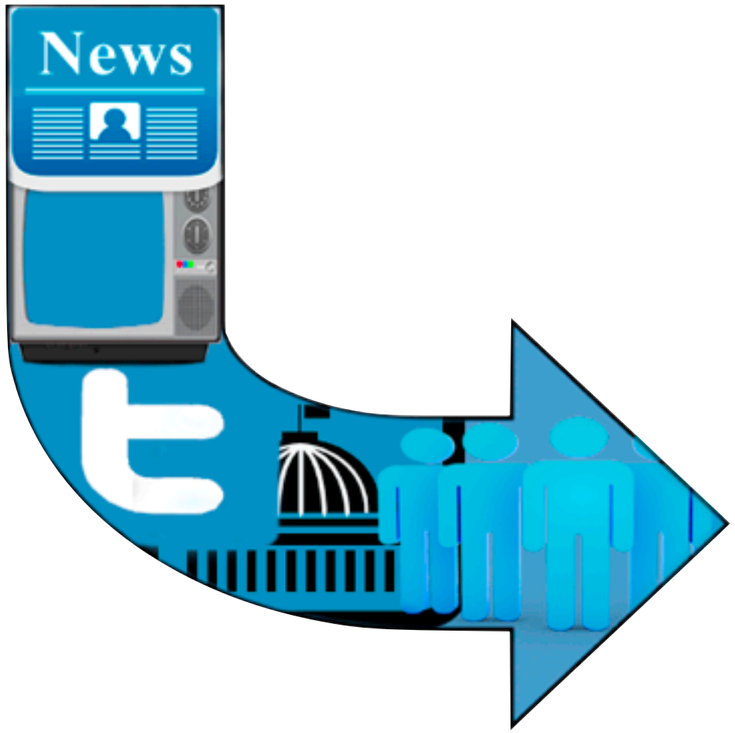

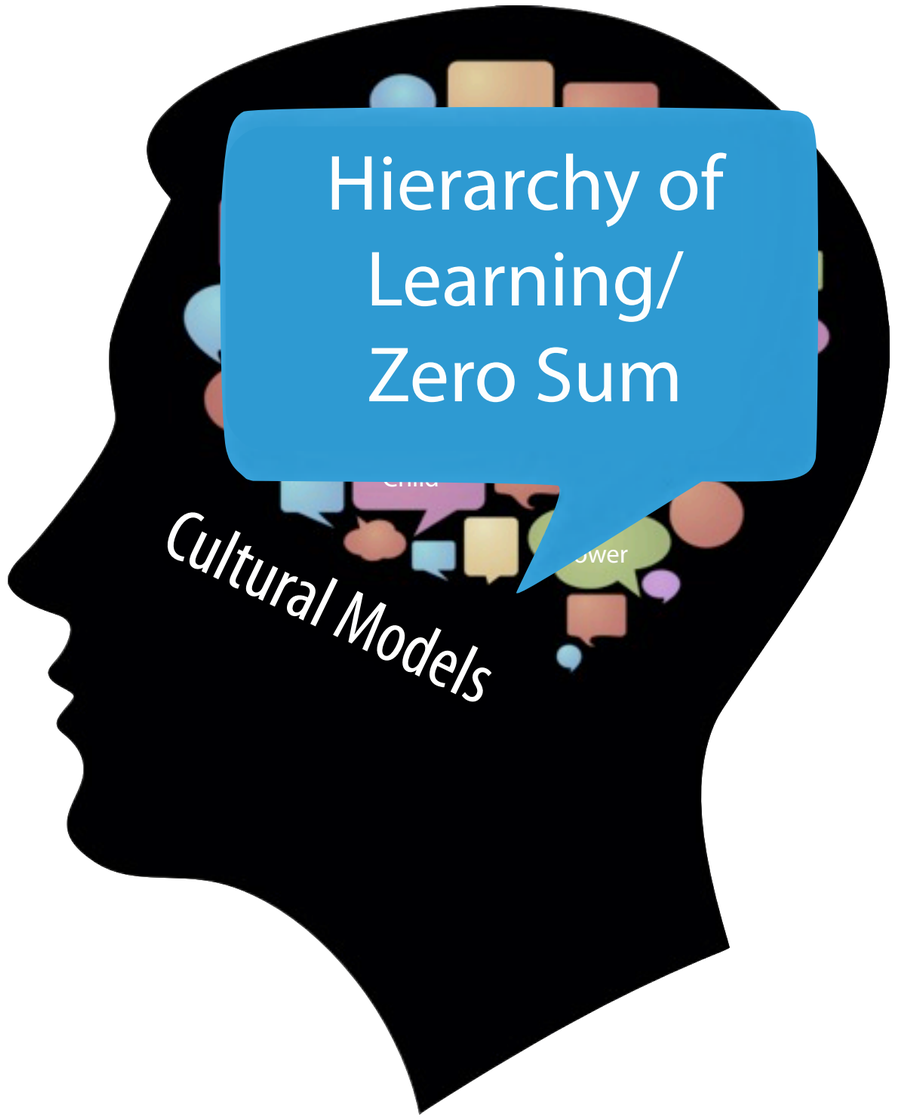

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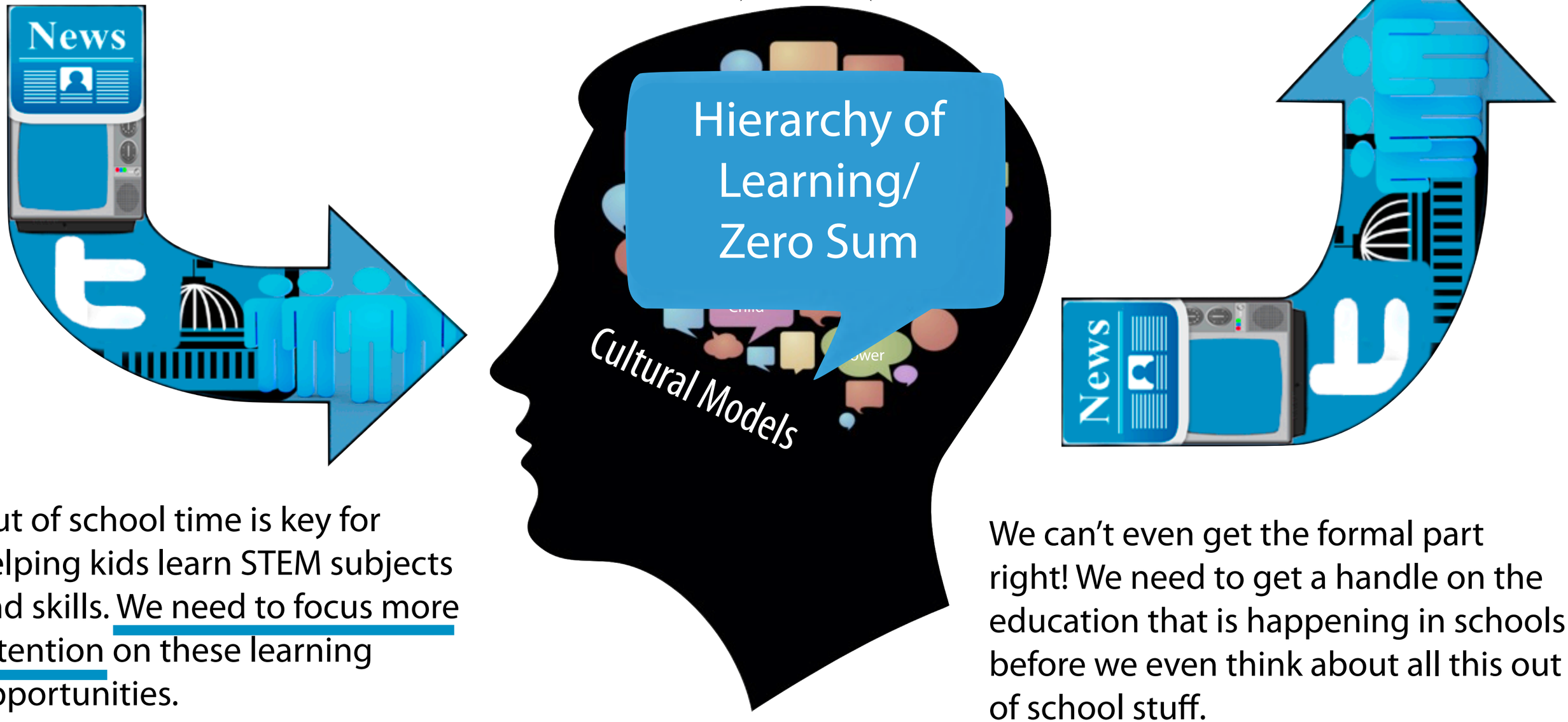

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We can't even get the formal part right! We need to get a handle on the education that is happening in schools before we even think about all this out of school stuff.

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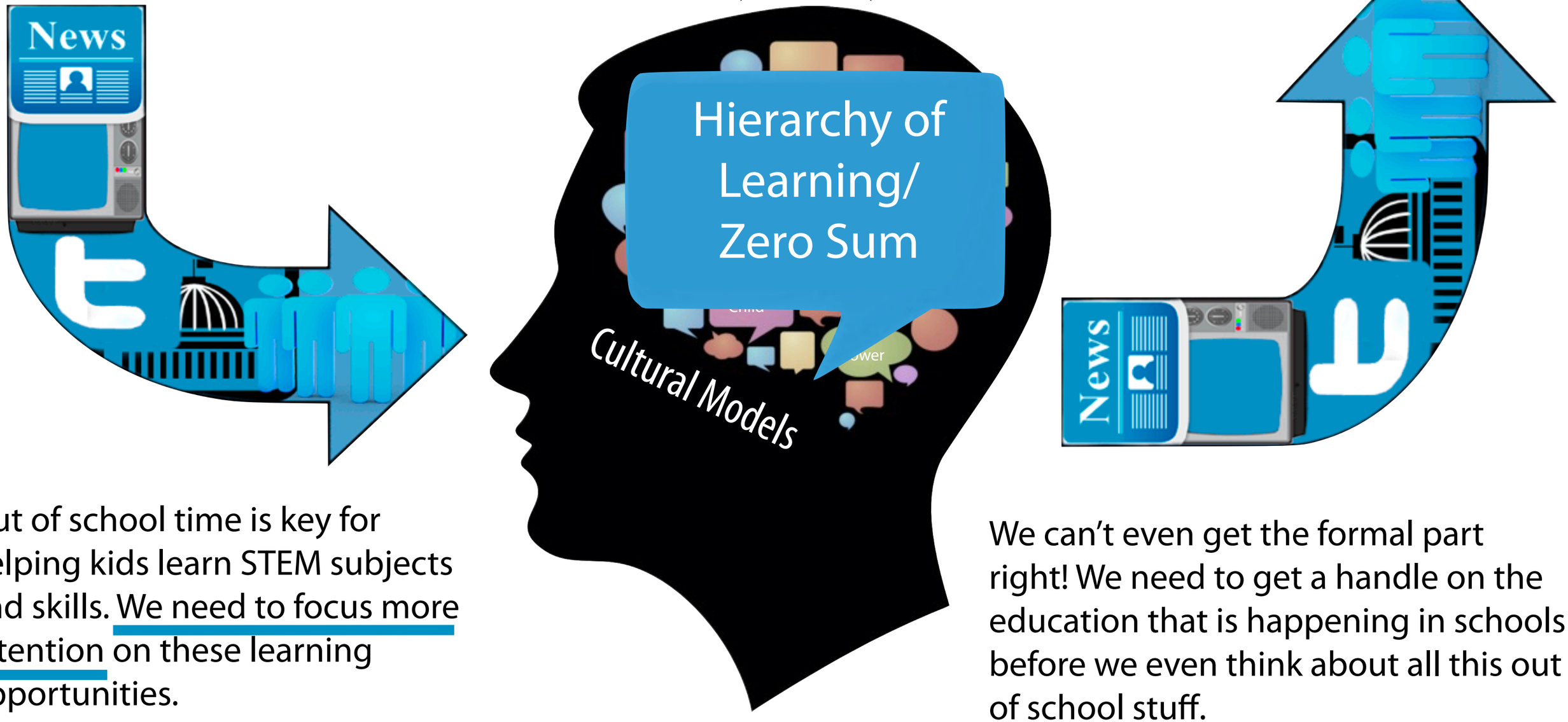

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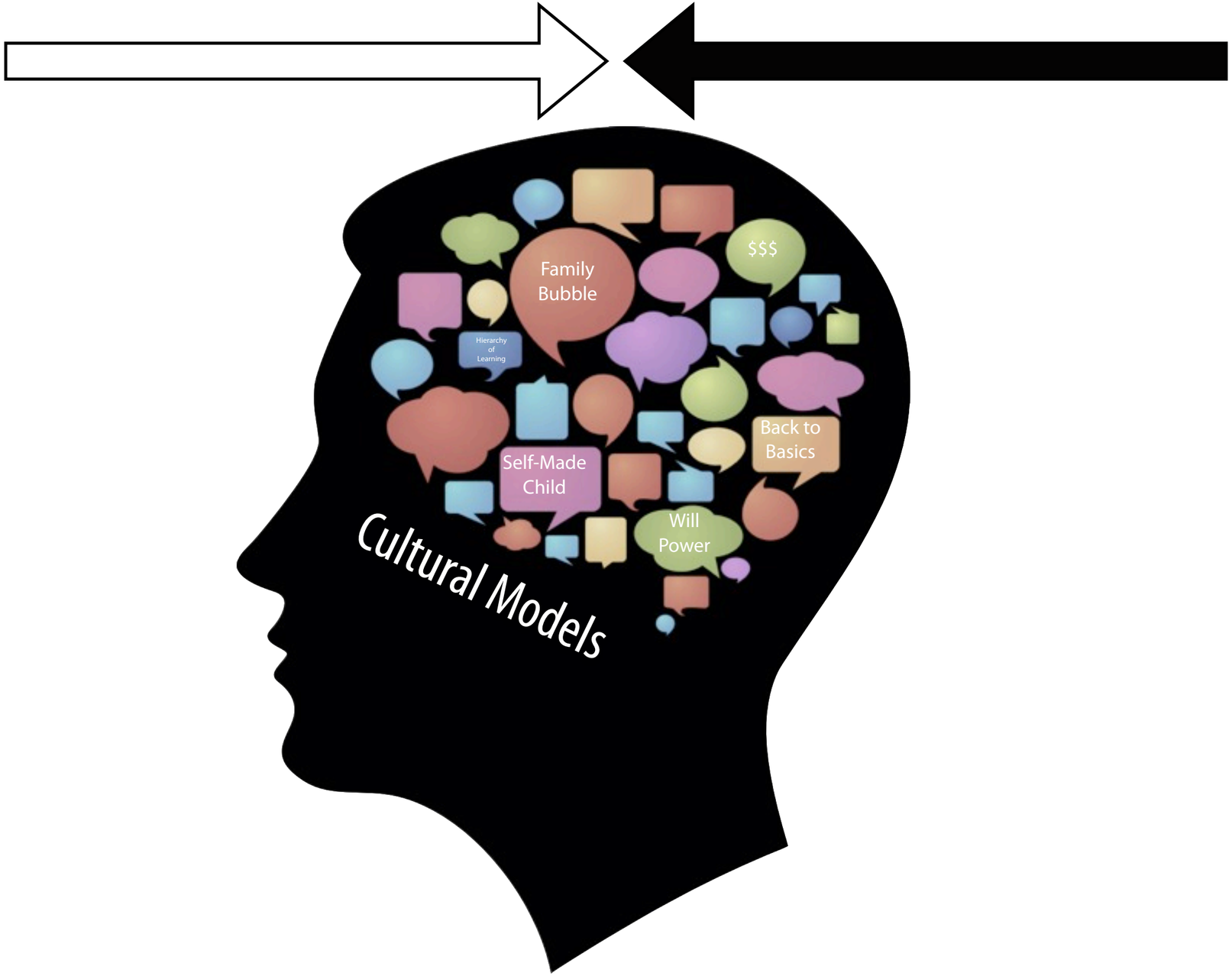

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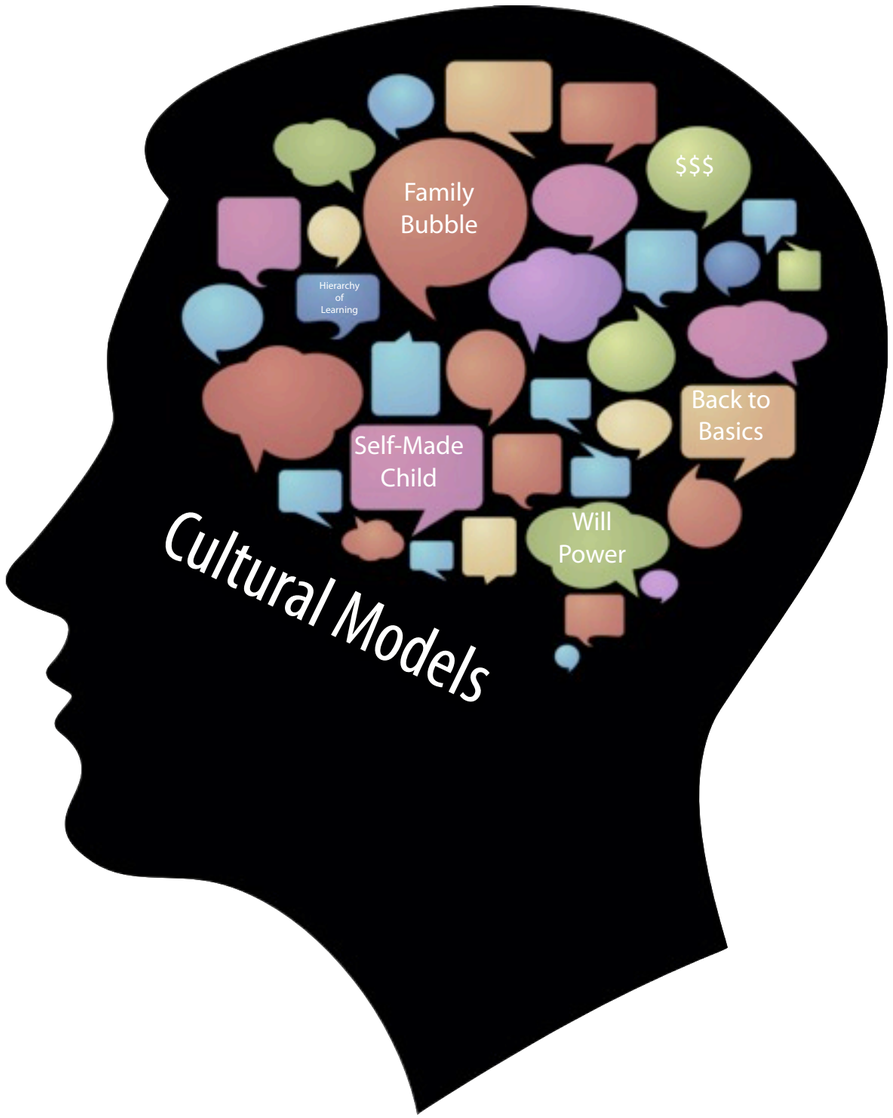

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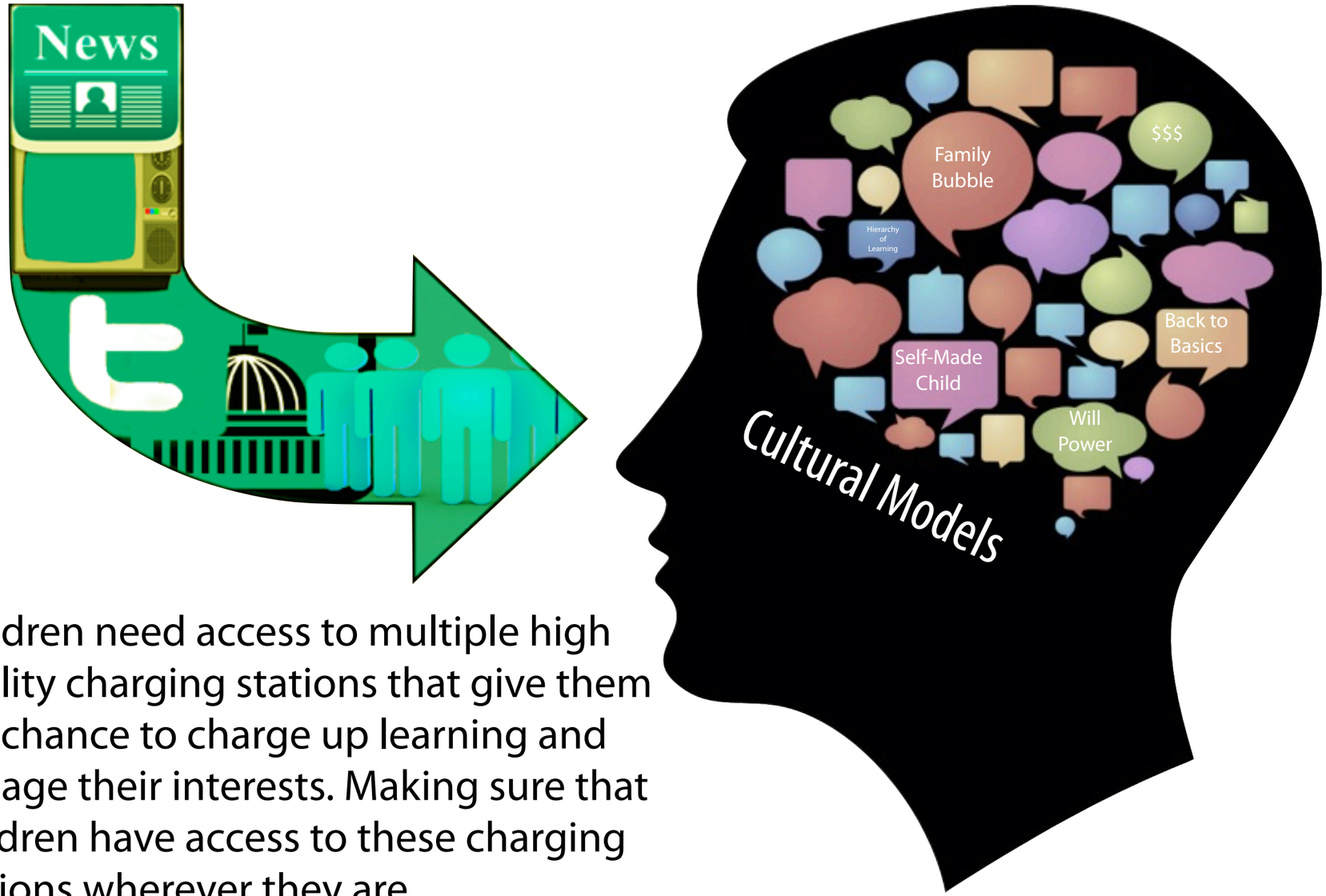

Children need access to multiple high quality charging stations that give them the chance to charge up learning and engage their interests. Making sure that children have access to these charging stations wherever they are.

Reframes

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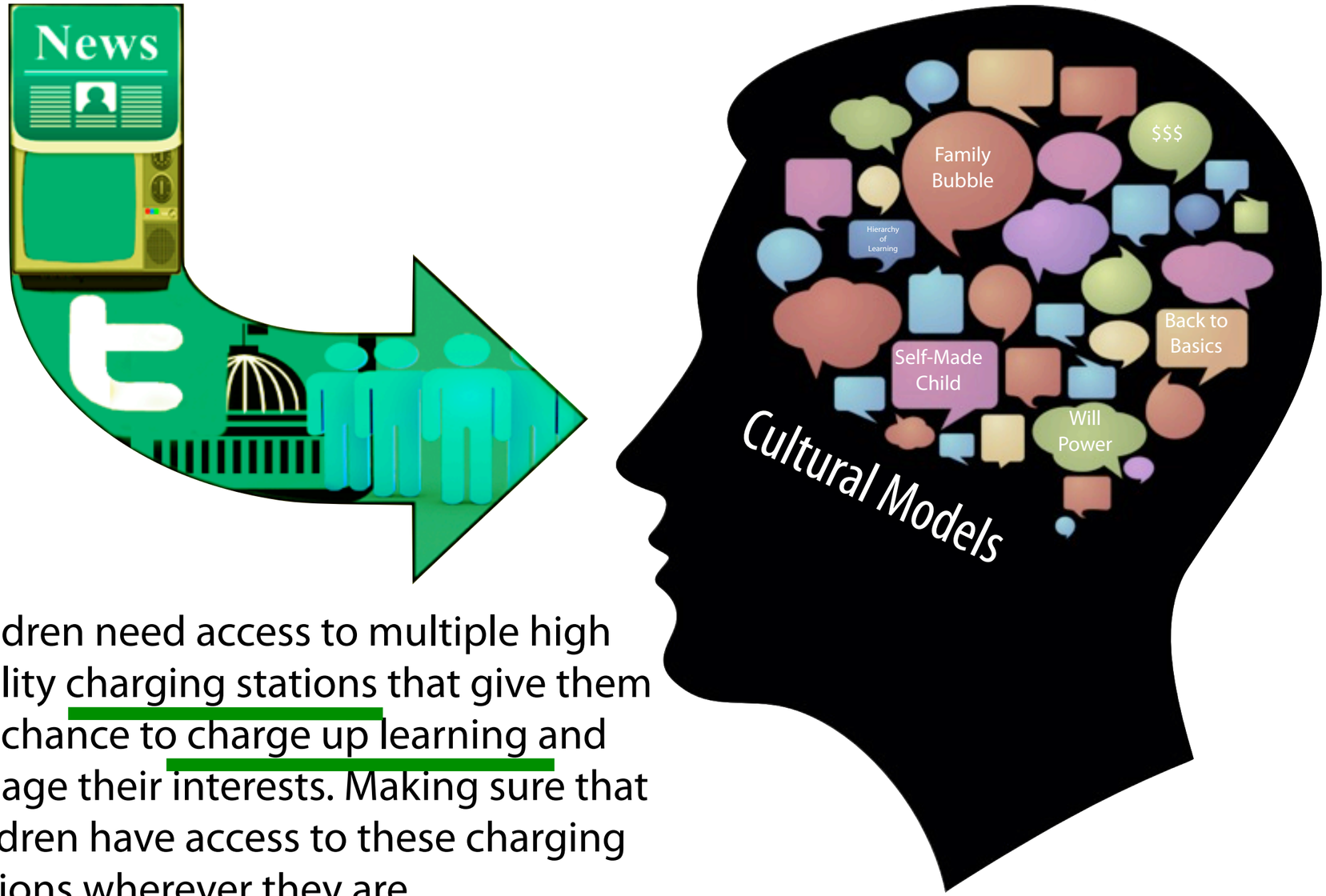

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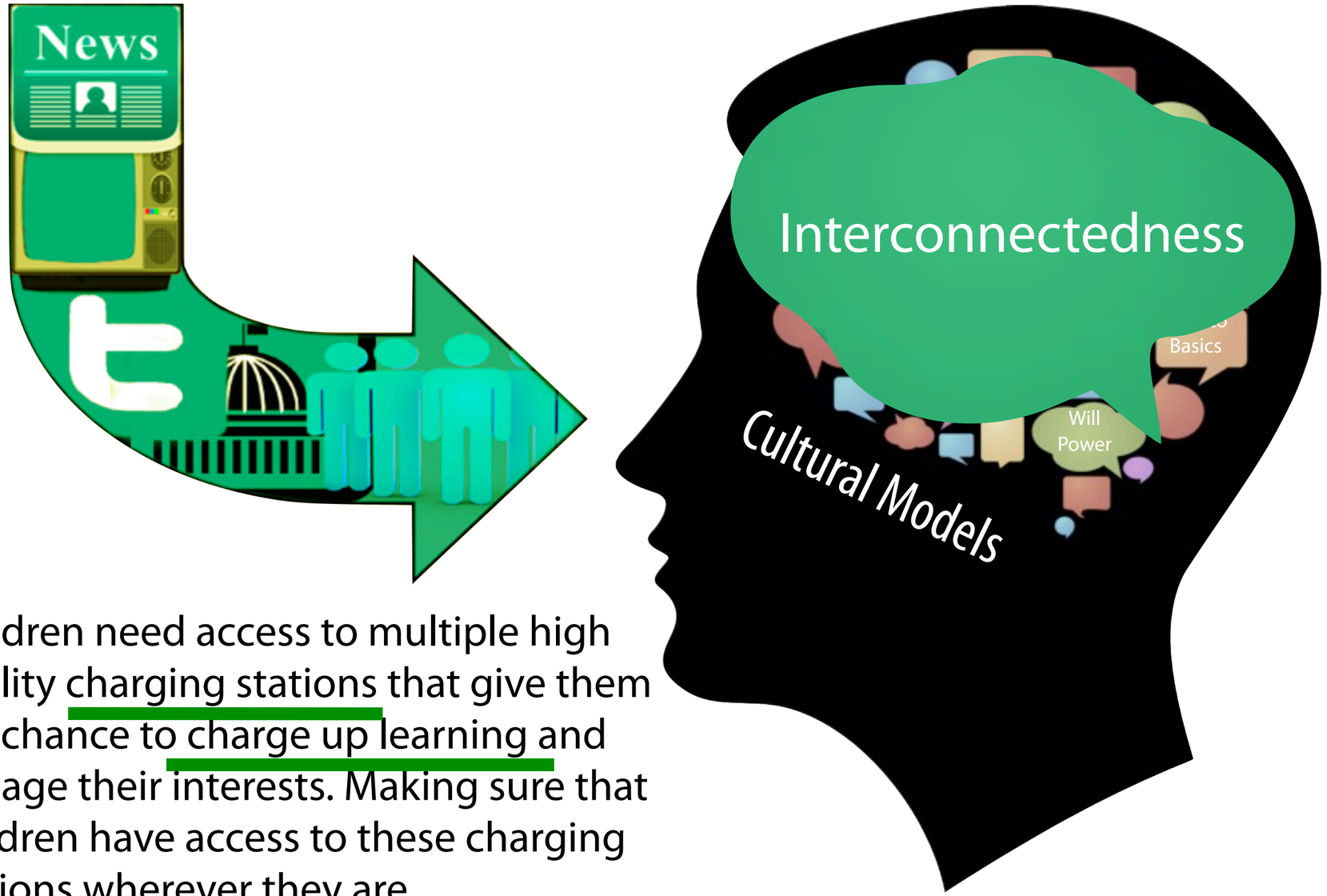

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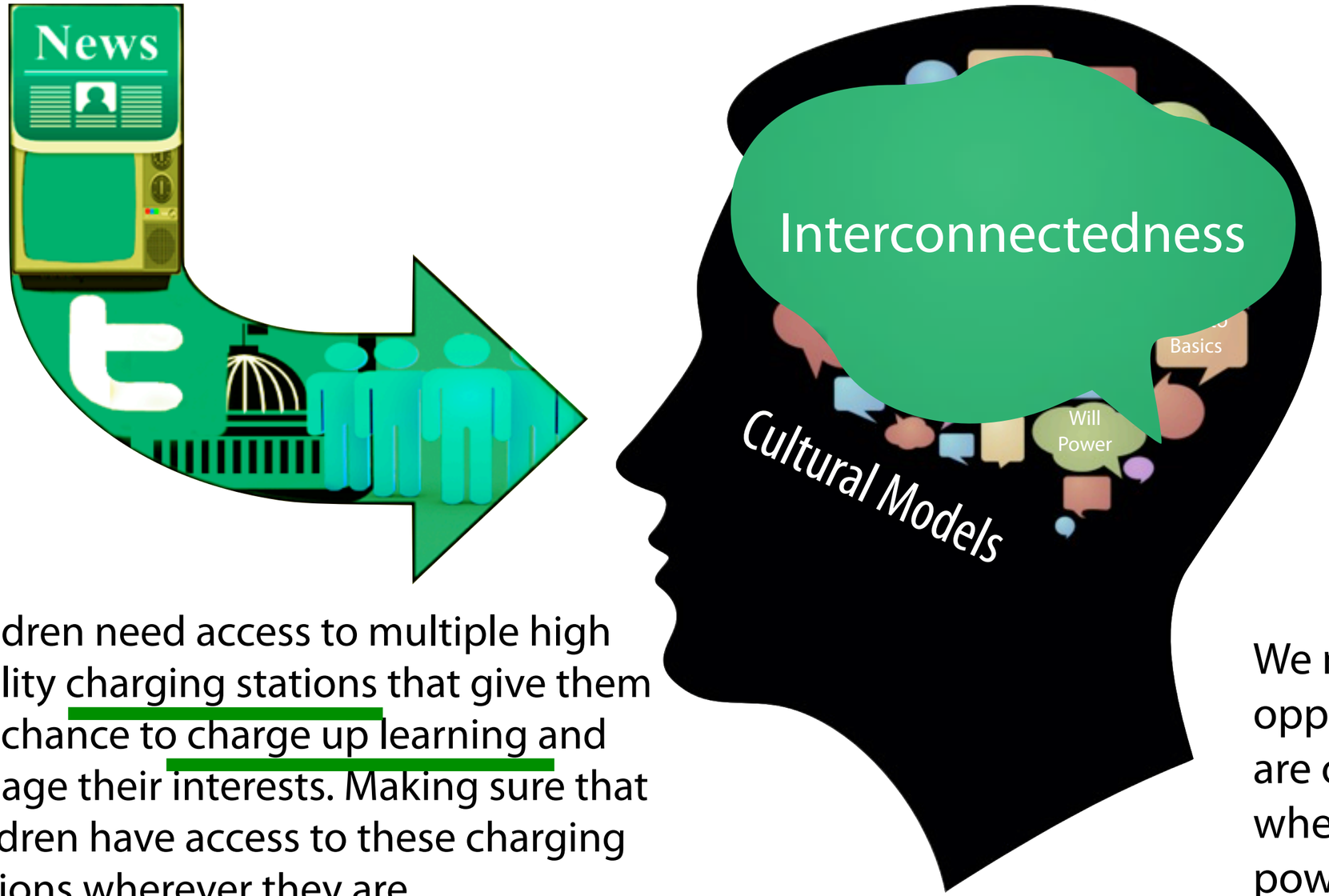

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We need to make sure that these opportunities to charge up learning are out there--so that, regardless of where kids live, they can plug in and power up their learning.

Public Discourse

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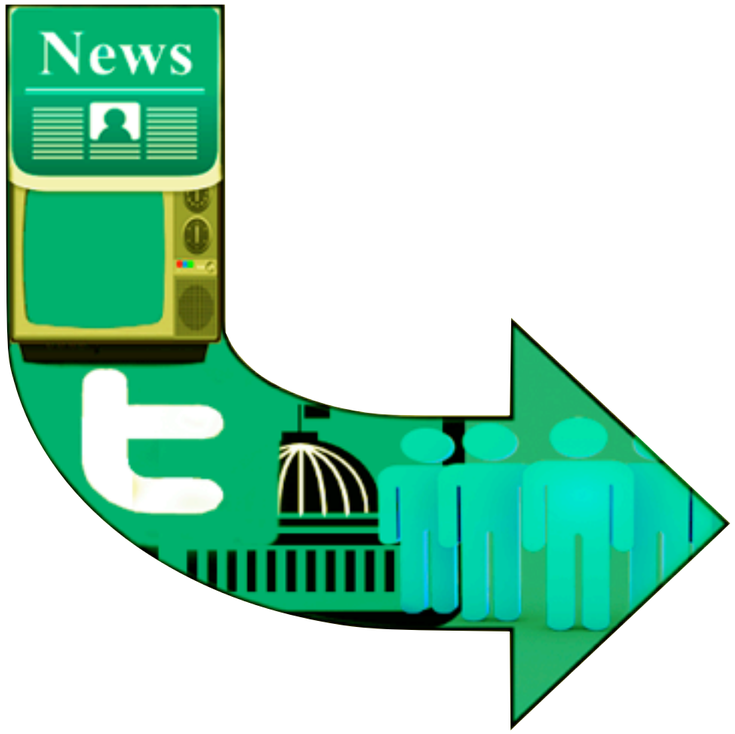

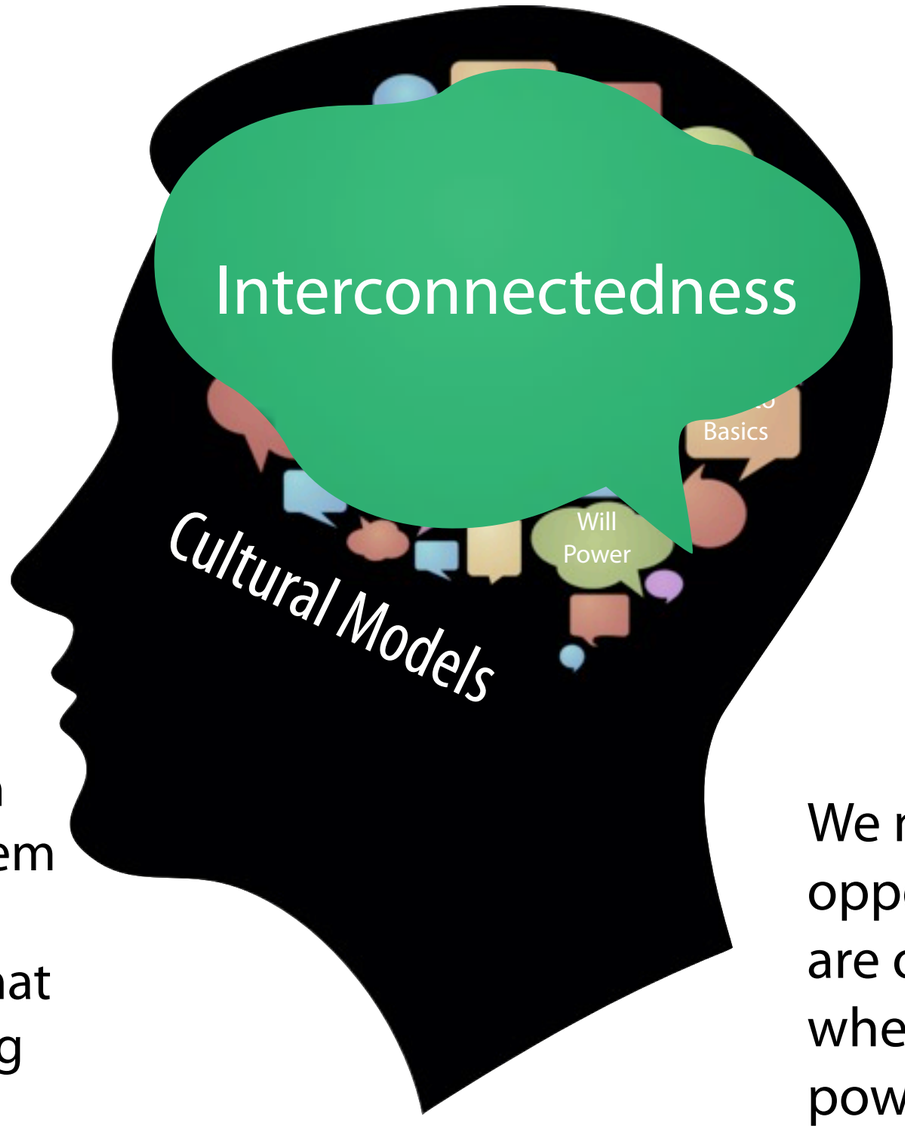

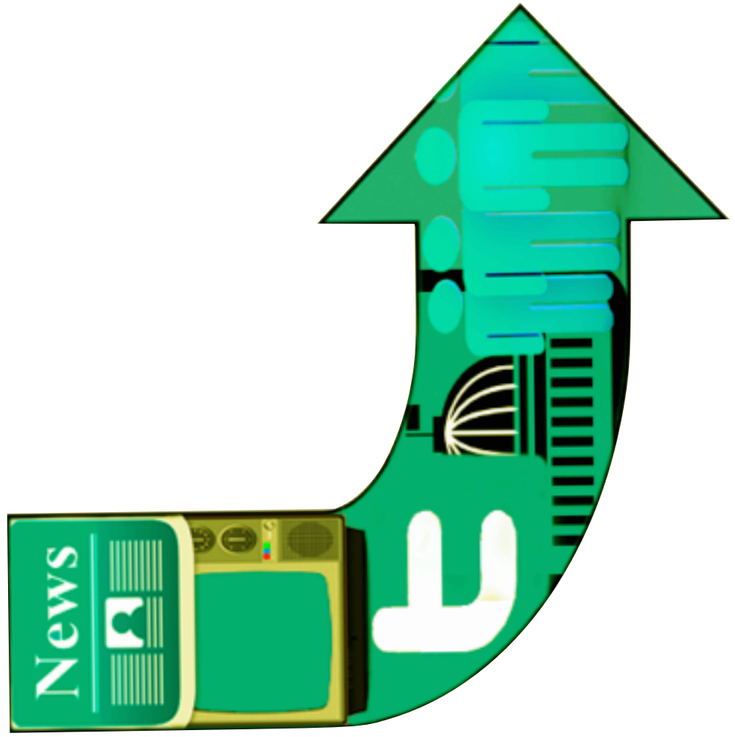

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Changed Public Discourse

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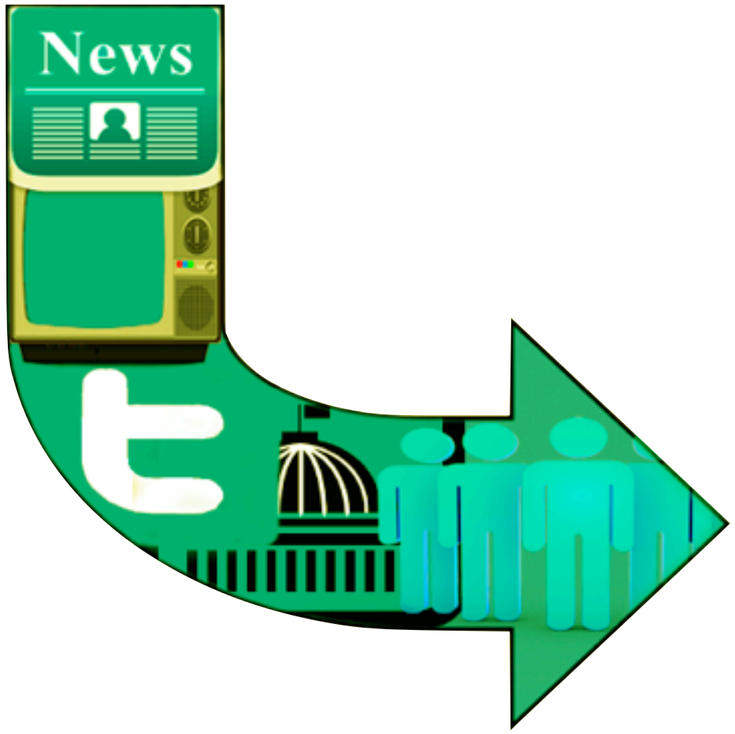

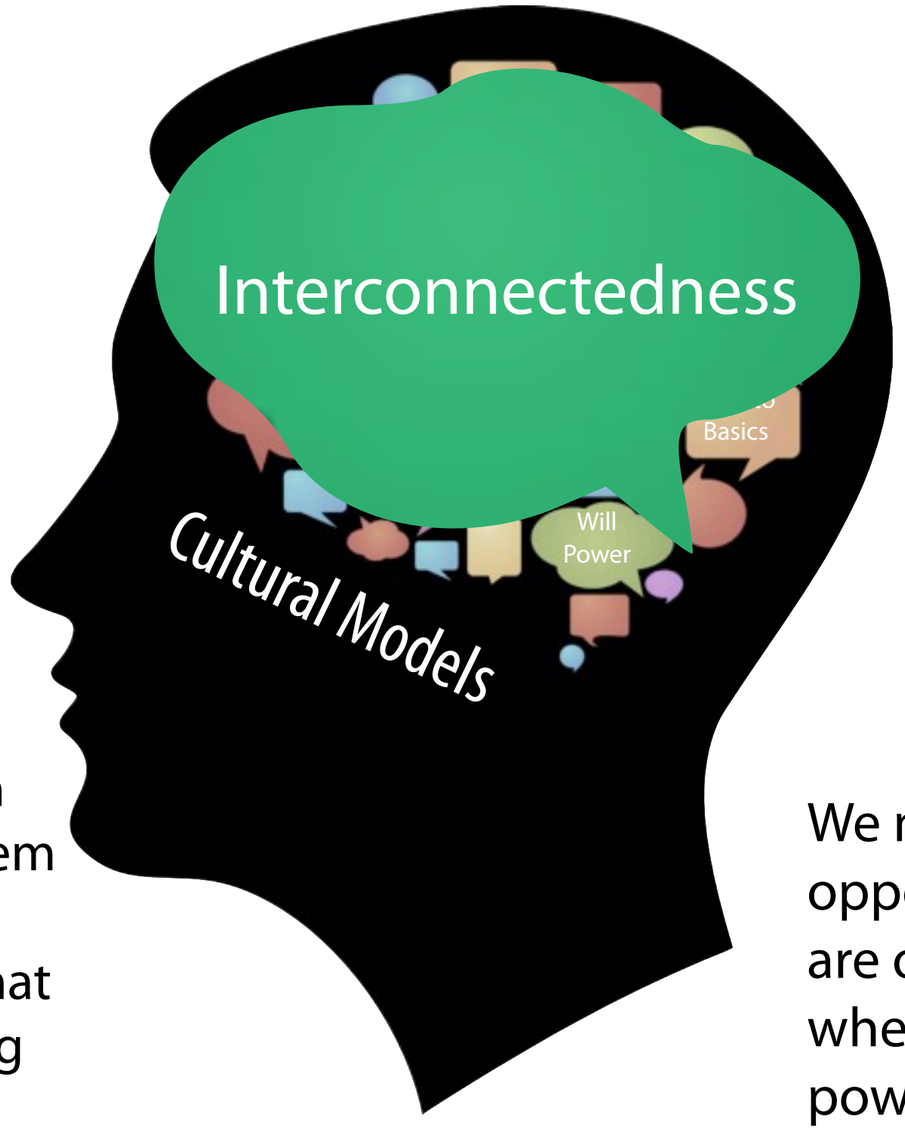

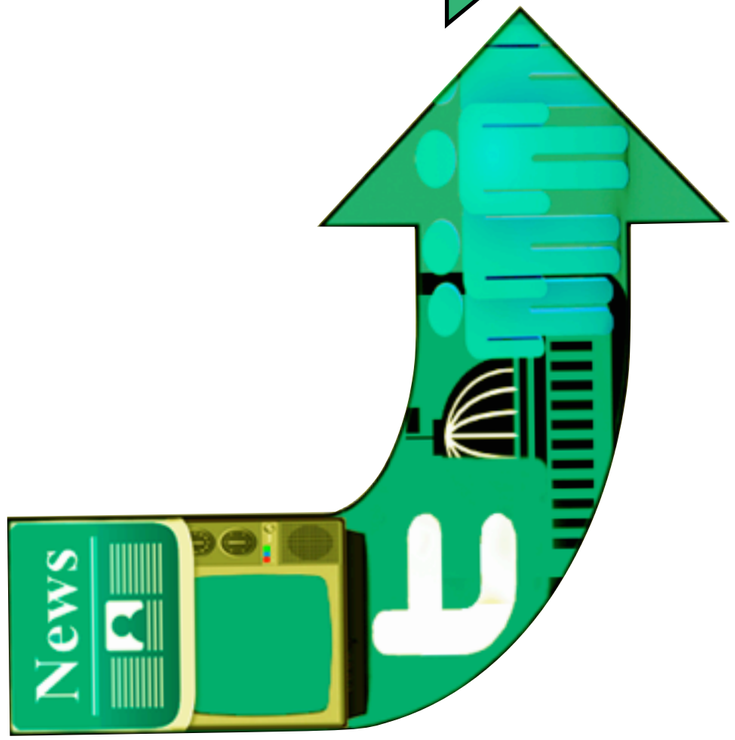

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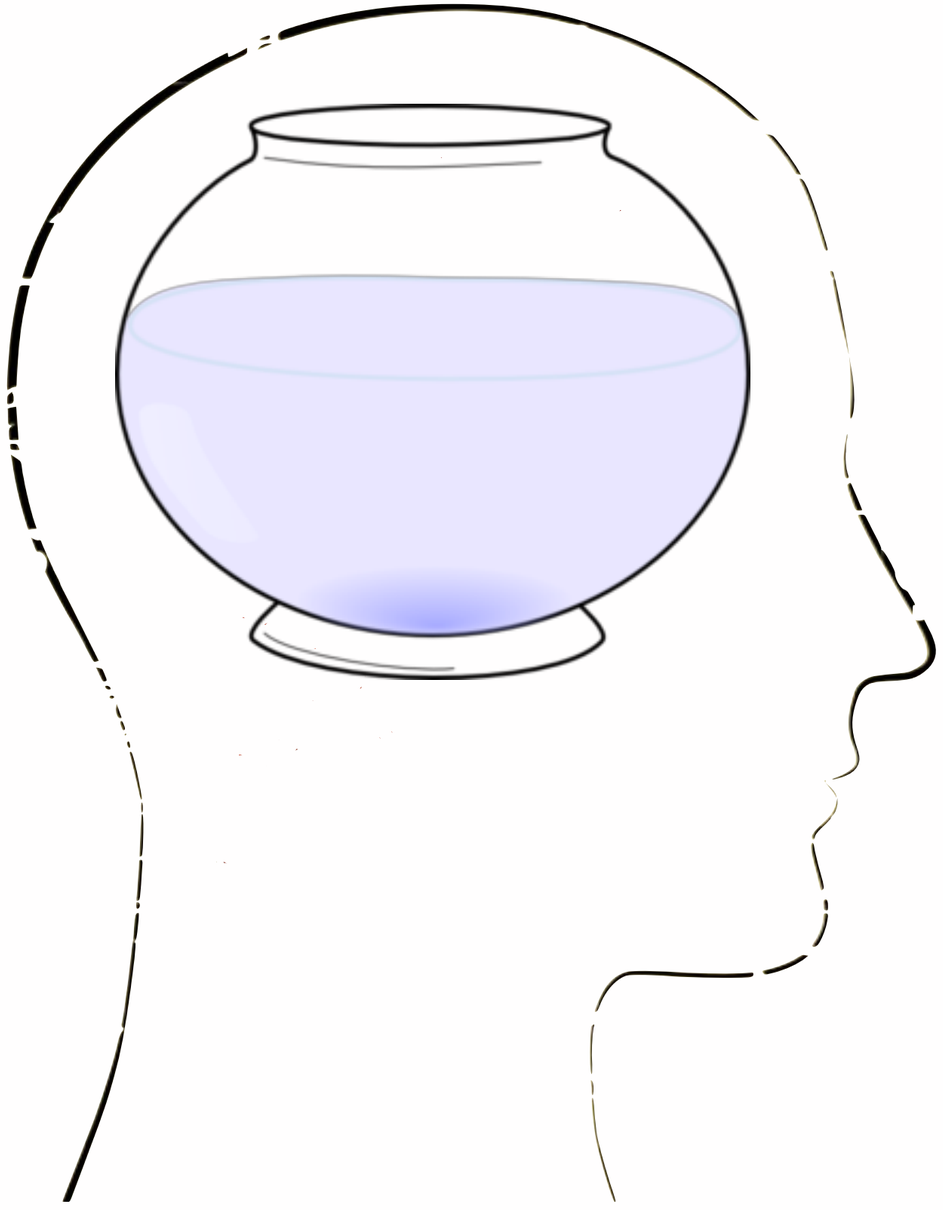

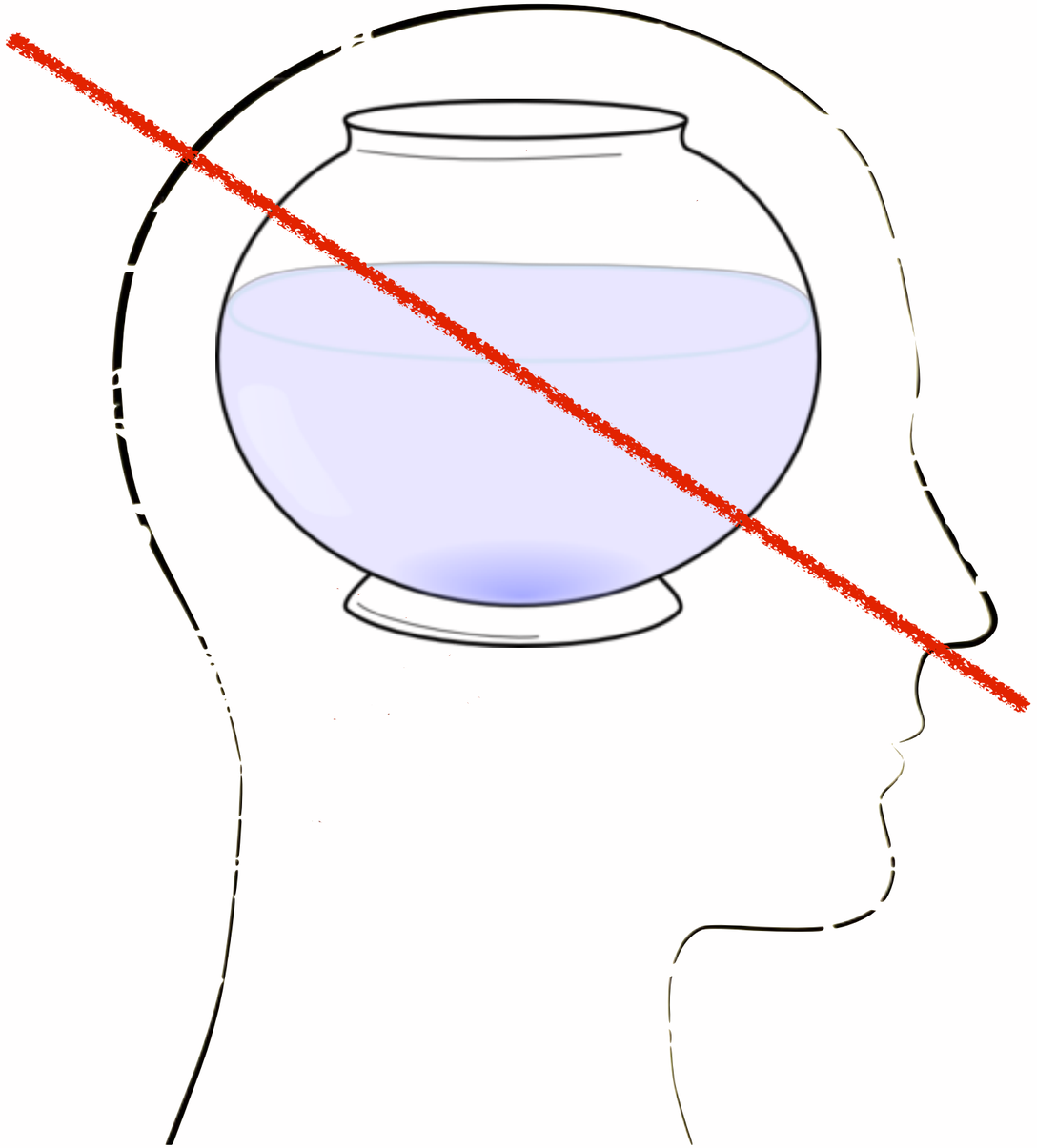

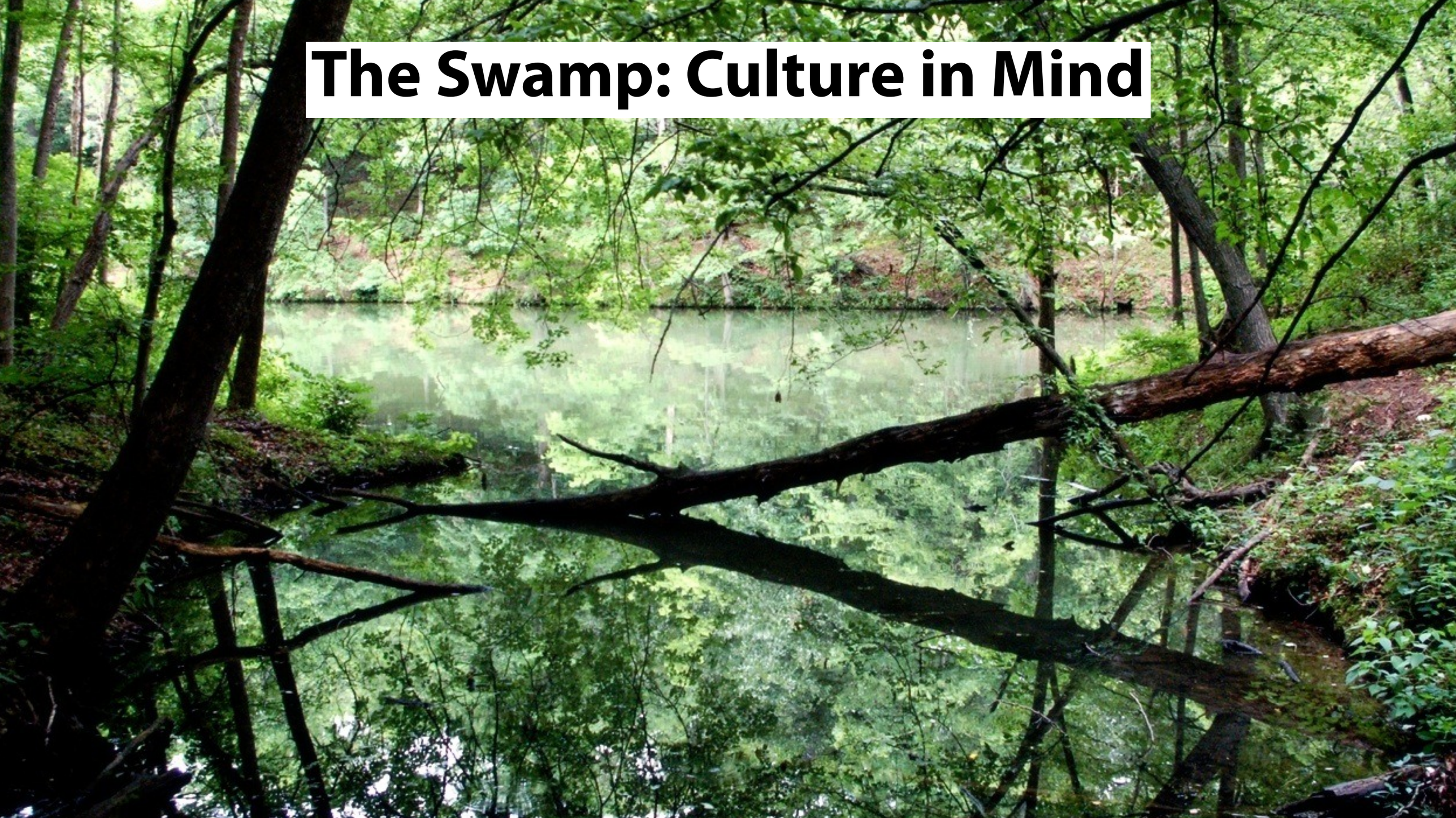
The Swamp: Culture in Mind

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What's in the swamp of...

STEM and Informal STEM Learning

STEM=Science

Science Studies the World

Science is Experimentation

Math=Adding + Subtracting

Tech=Computers

Comps + School=Danger/Distraction

Engineering=HIGHLY Specialized

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Learning

Naturalism

Hands-On

Back to Basics

Caring Teacher

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Learning Hierarchy
(informal=supplement)

Rechargeable Attention

Informal=Freedom/Low Stakes

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Societal Progress

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Differences

Drive
Cultural Differences
"Types"

Learning Locations

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What's in the swamp of...

STEM and Informal STEM Learning

REFORM

Fatalism/Politics as Usual
Flavor of the Month
Nostalgia--Back in my day...
Zero-Sum

STEM=Science
Science Studies the World
Science is Experimentation
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Mapping the Gaps

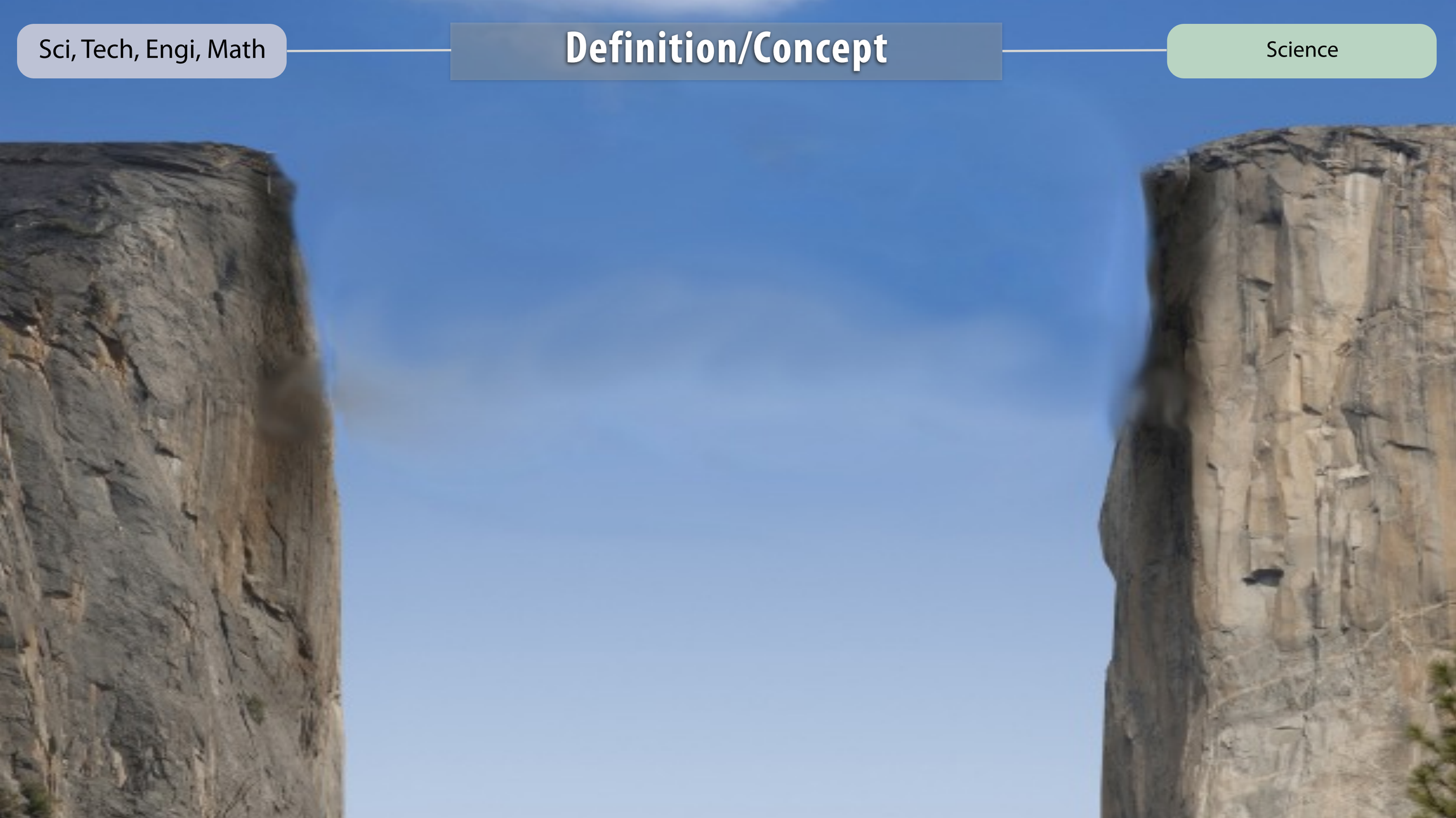
Expert Story

Public Story

Sci, Tech, Engi, Math

Definition/Concept

Science



Sci, Tech, Engi, Math

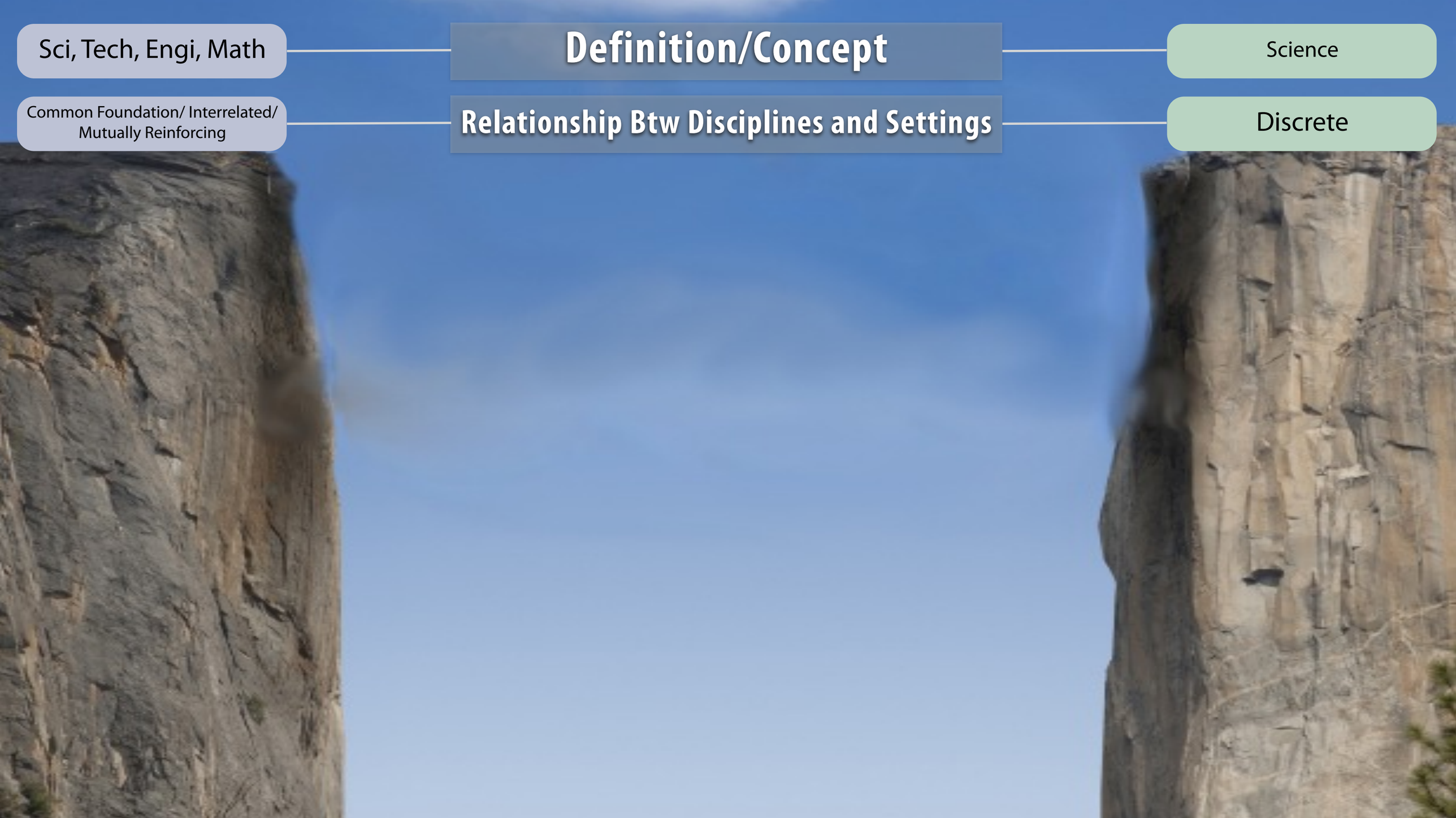
Common Foundation/ Interrelated/ Mutually Reinforcing

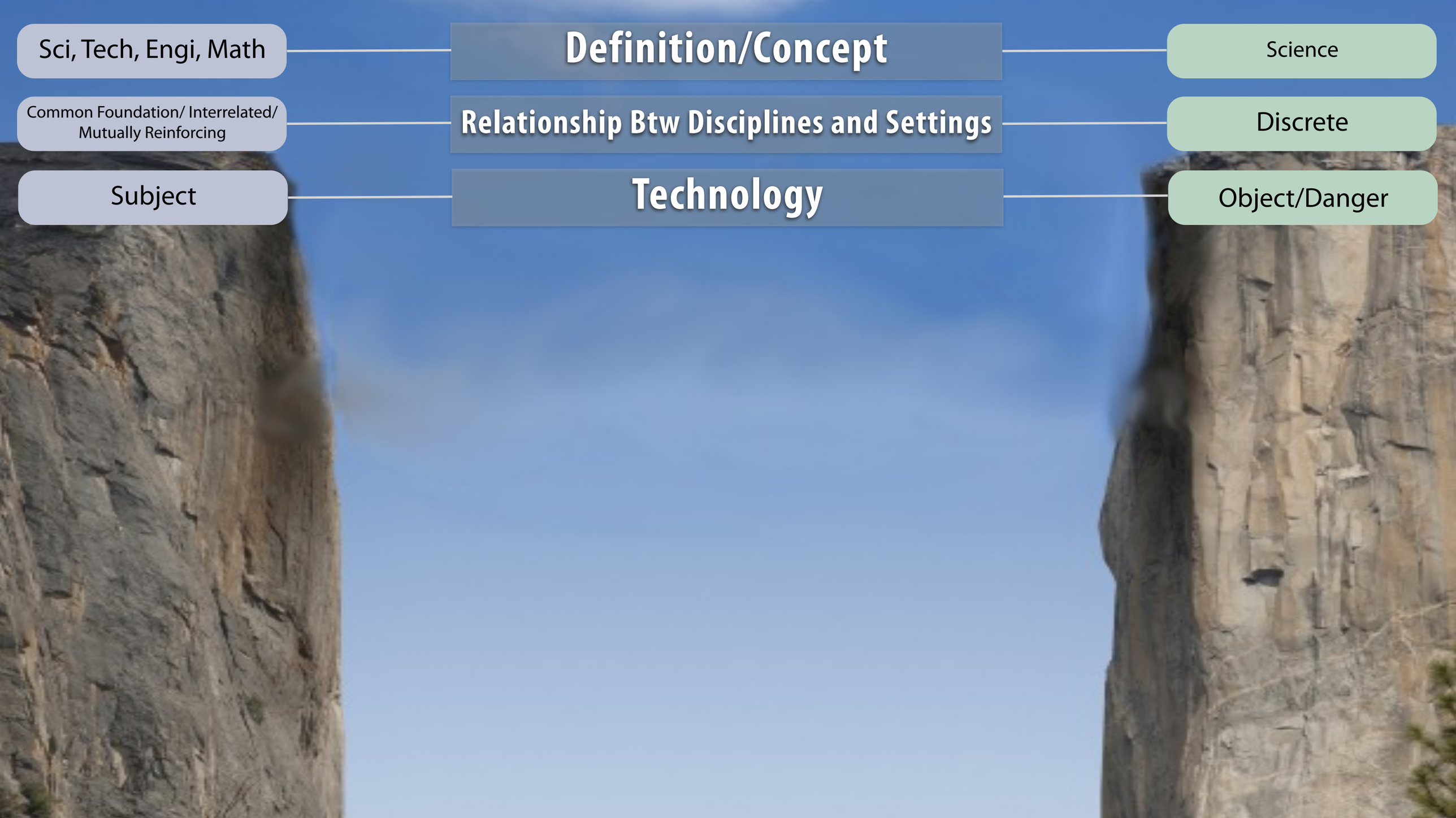
Definition/Concept

Relationship Btw Disciplines and Settings

Science

Discrete




Sci, Tech, Engi, Math
Definition/Concept
Science
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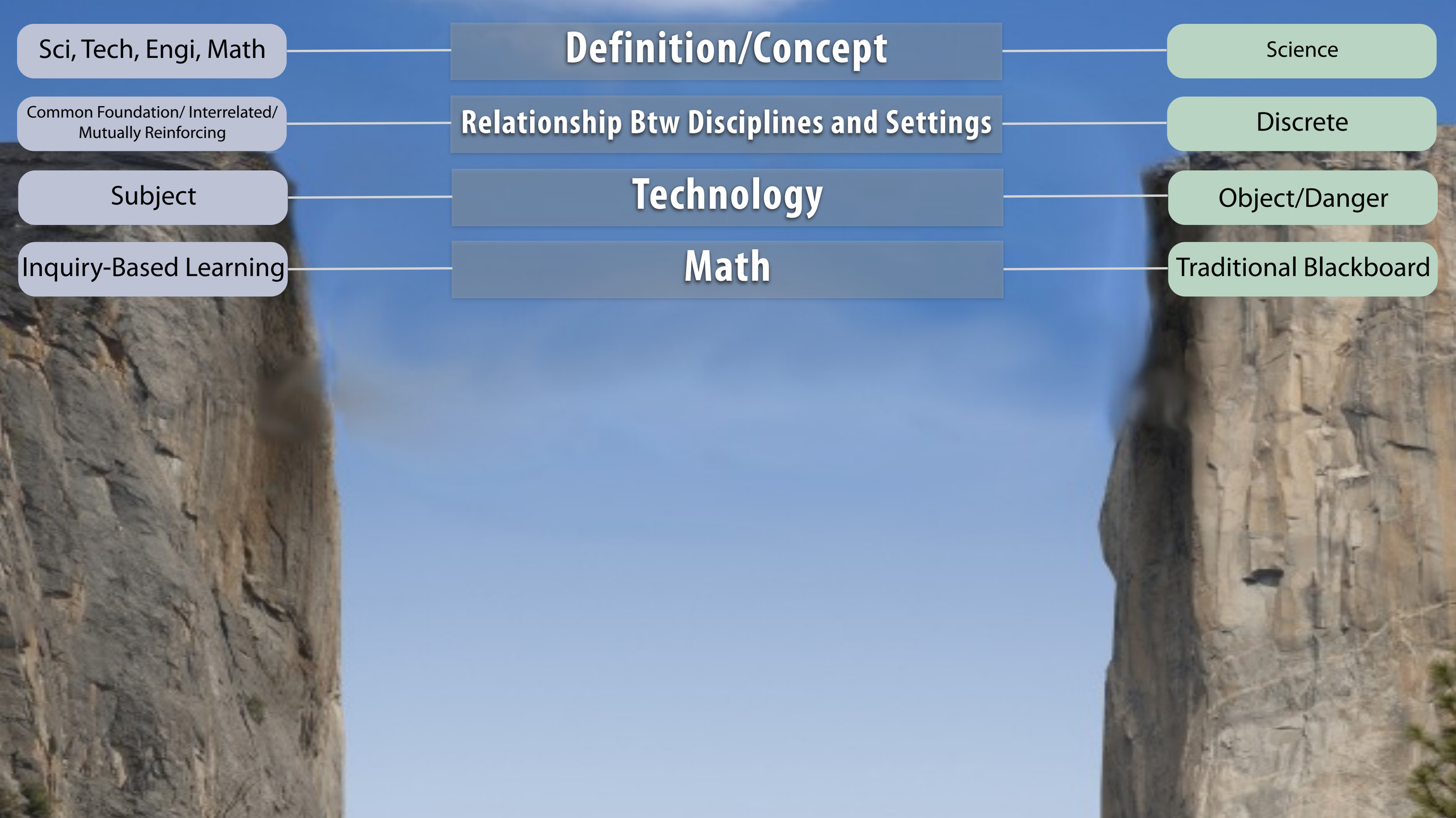
Relationship Btw Disciplines and Settings
Discrete
Subject
Technology
Object/Danger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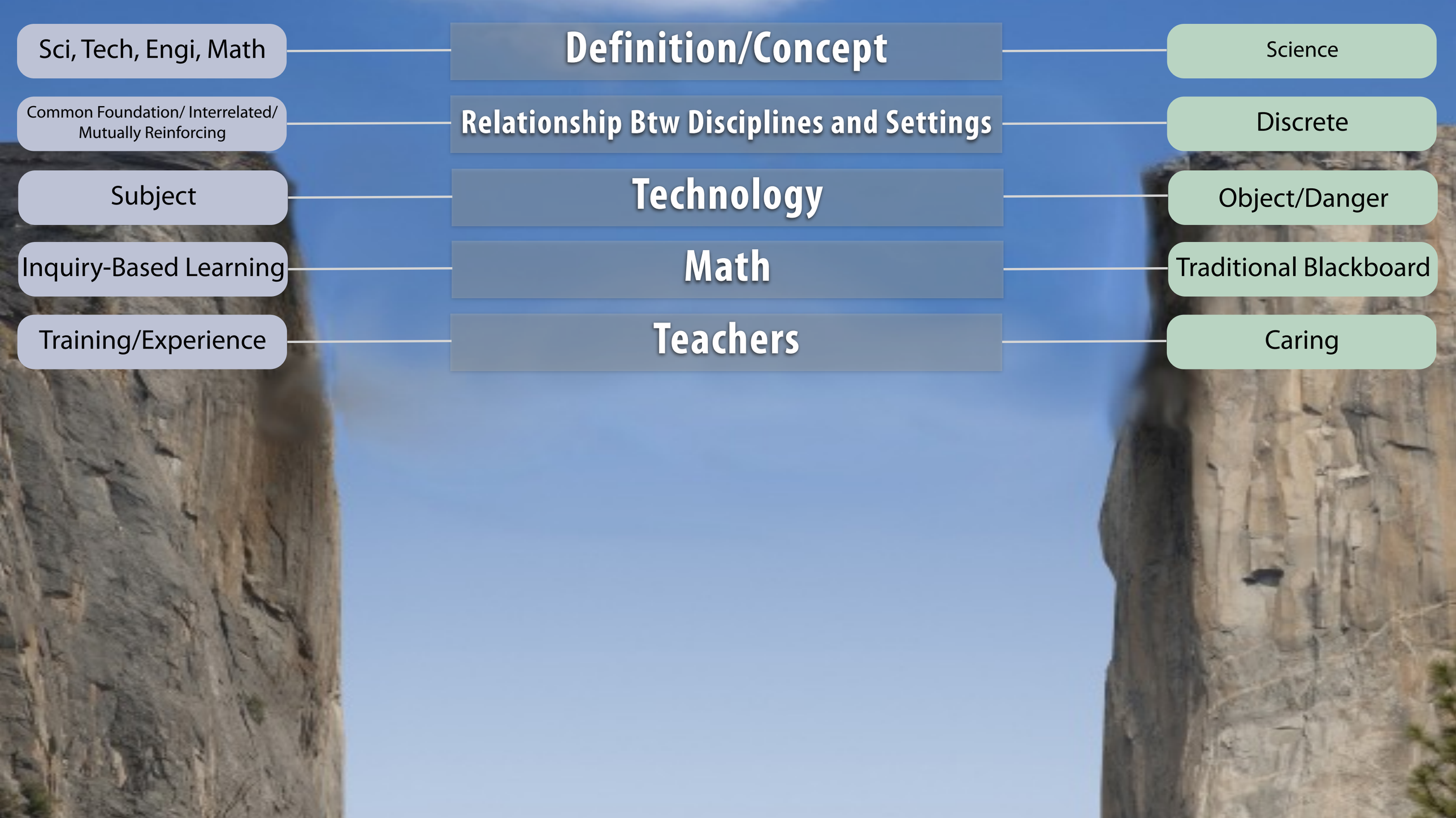
Math
Traditional Blackboard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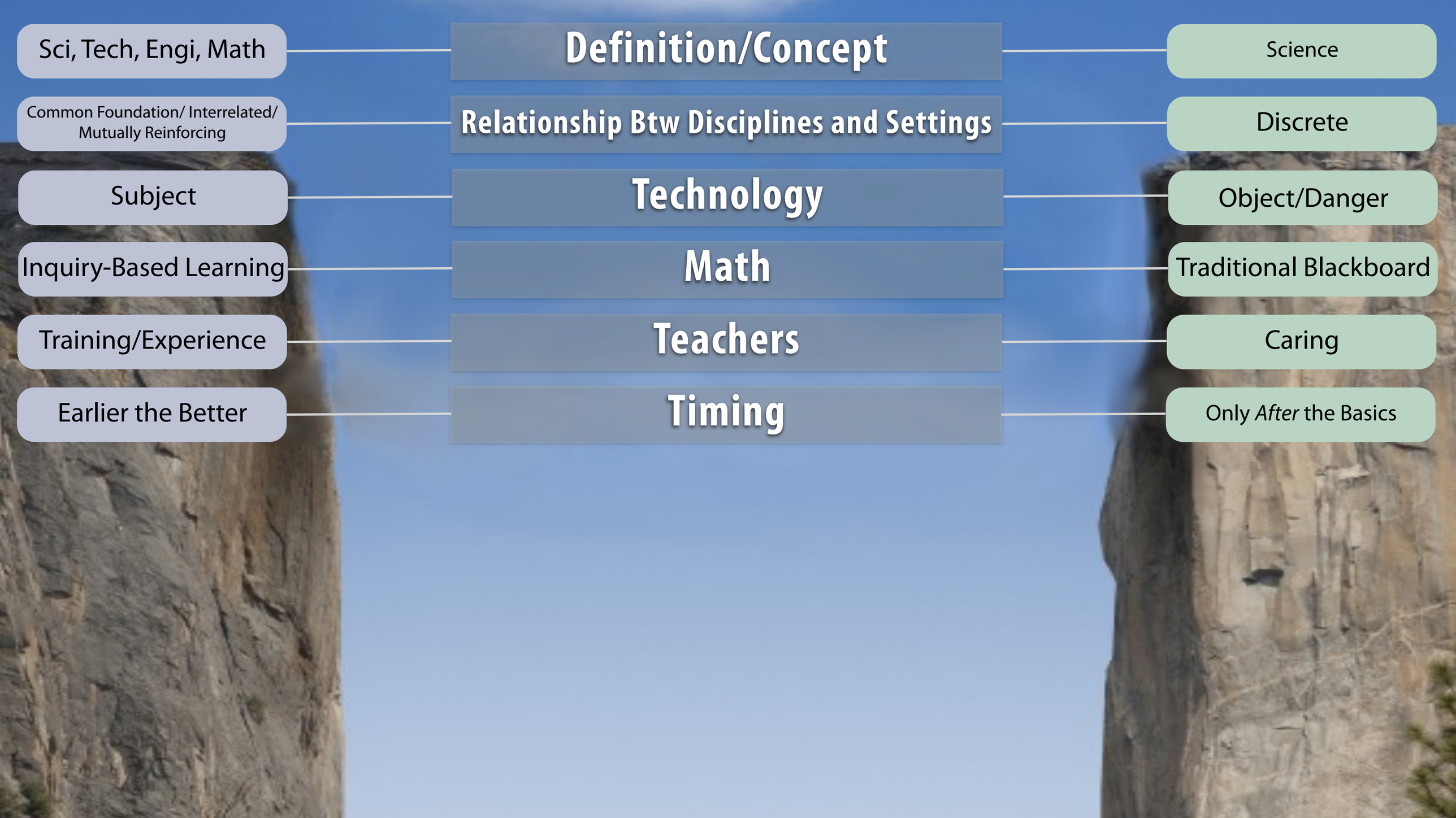
Teachers
Caring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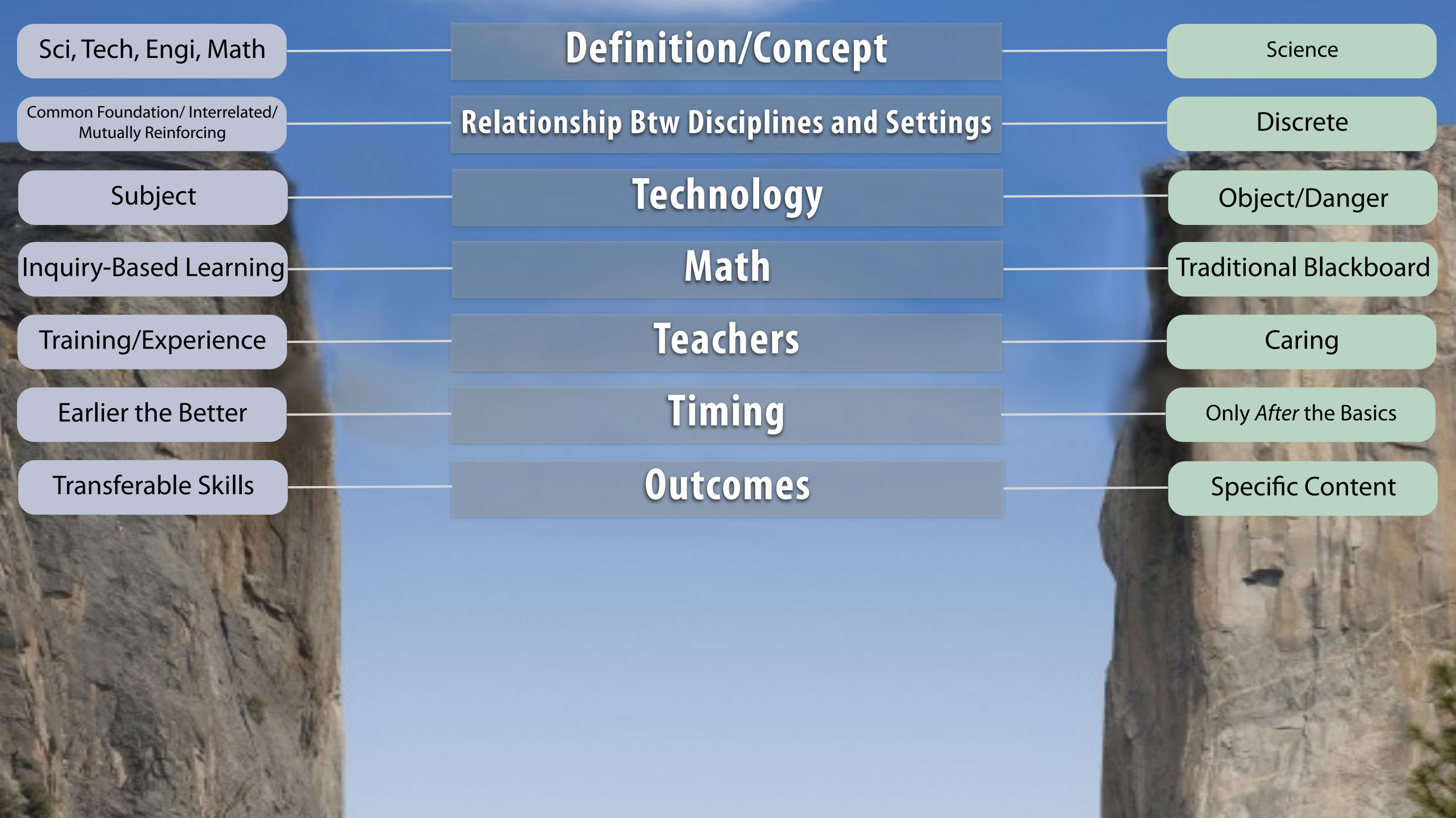
Teachers
Caring
Earlier the Better
Timing
Only *After* the Basics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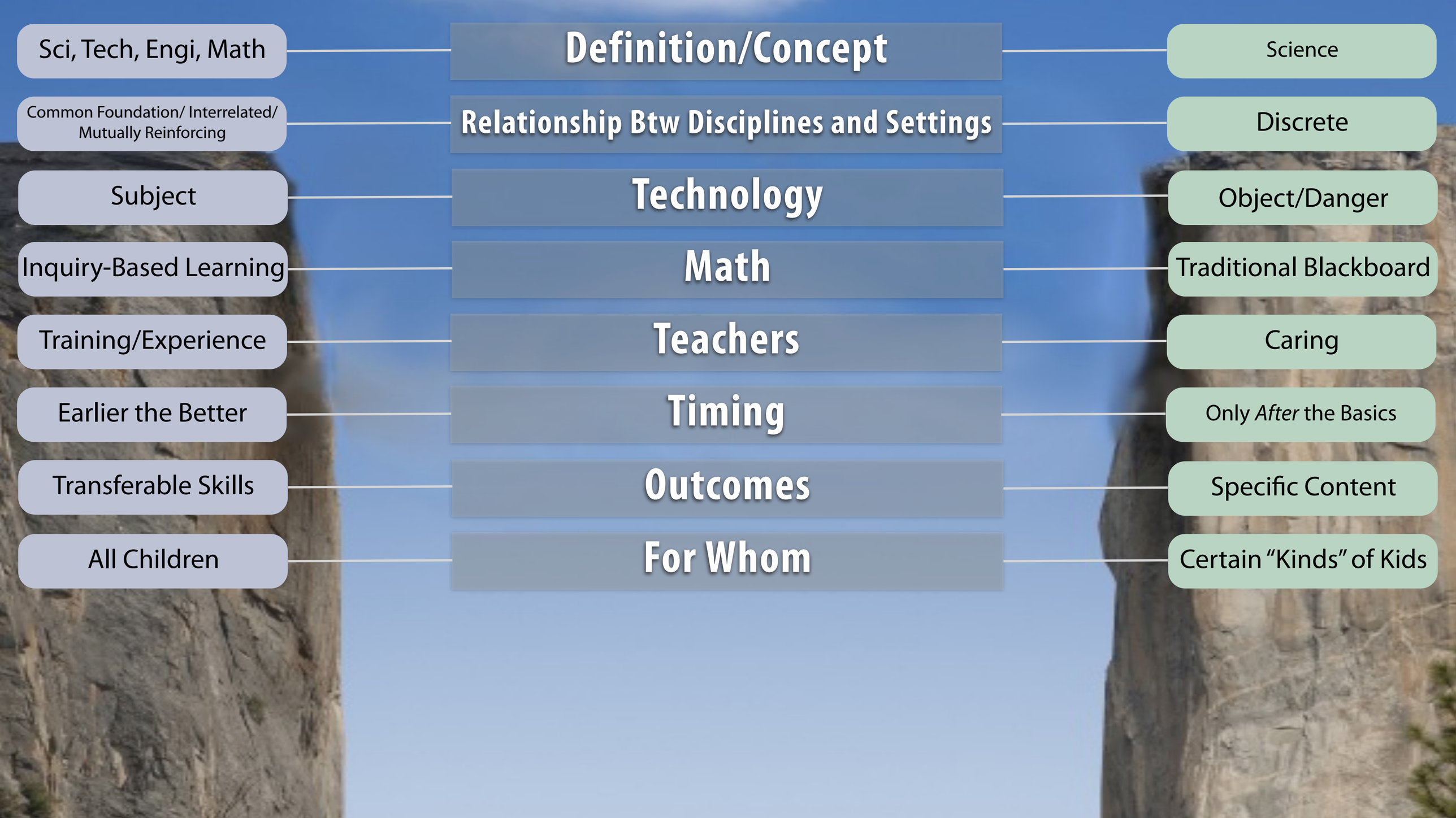
Transferable Skills
Outcomes
Specific Content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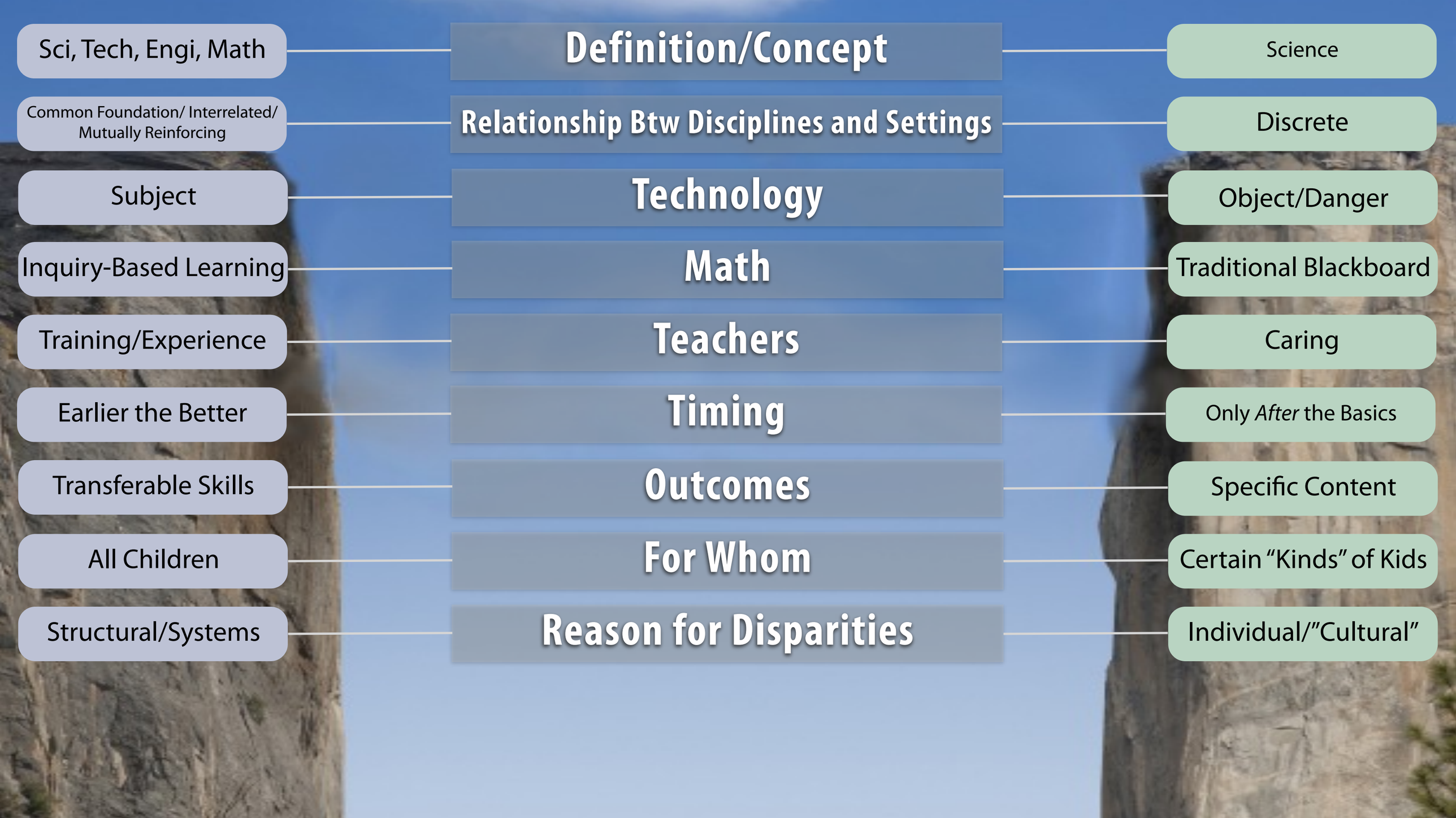
All Children
For Whom
Certain "Kinds" of Kids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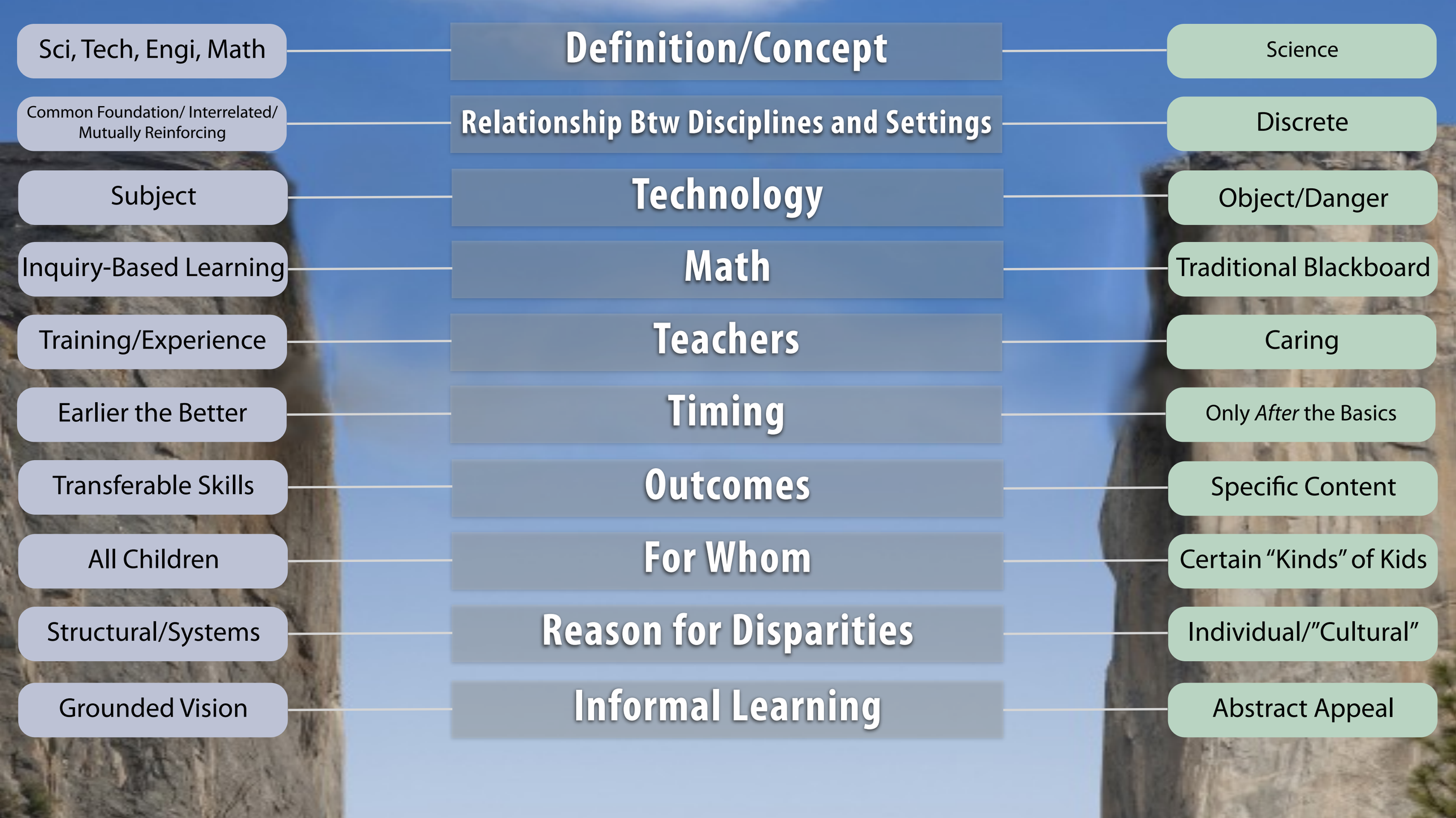
Structural/Systems
Reason for Disparities
Individual/"Cultural"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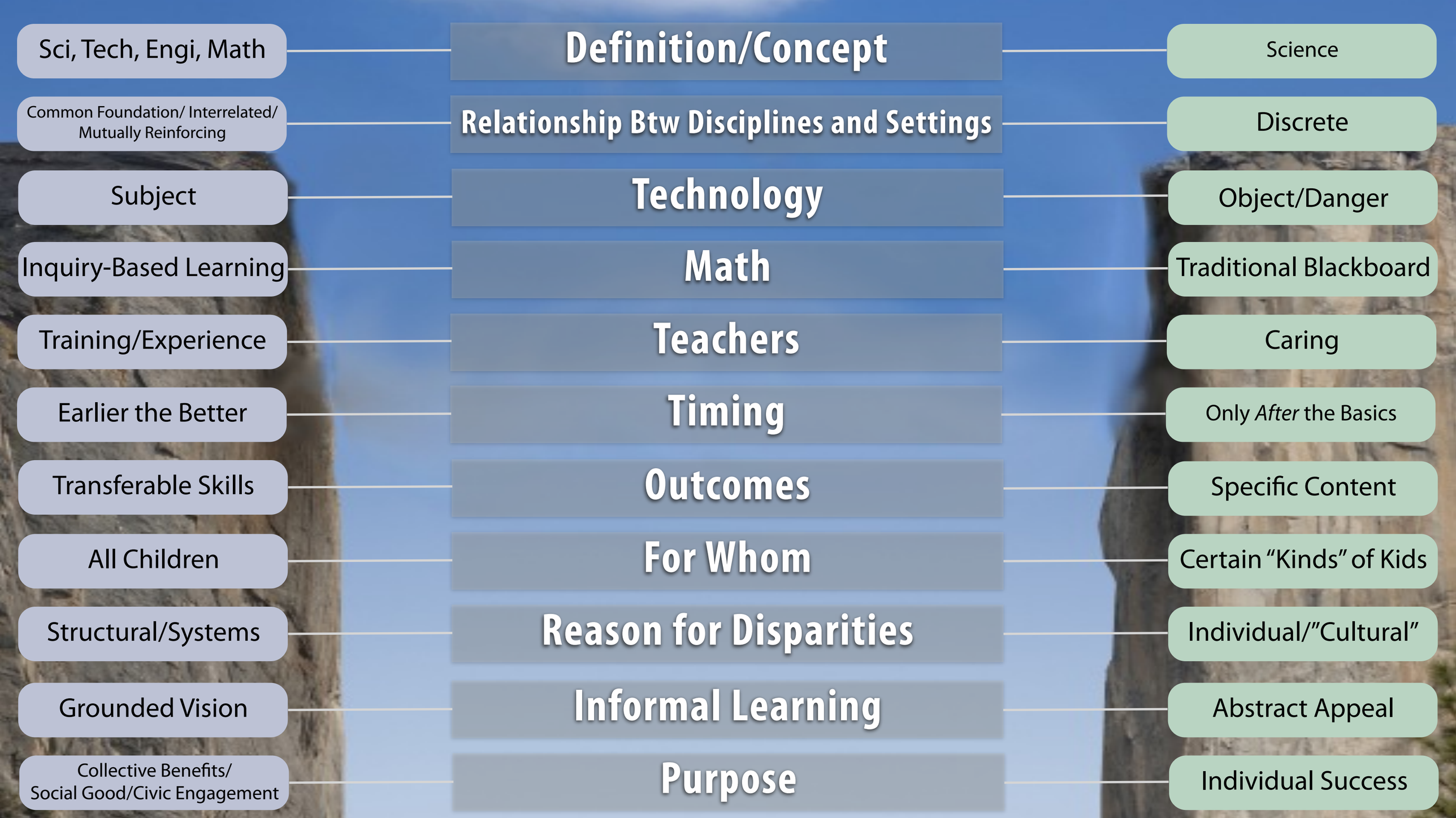
Grounded Vision
Informal Learning
Abstract Appeal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Subject
Technology
Object/Danger
Inquiry-Based Learning
Math
Traditional Blackboard
Training/Experience
Teachers
Caring
Earlier the Better
Timing
Only *After* the Basics
Transferable Skills
Outcomes
Specific Content
All Children
For Whom
Certain "Kinds" of Kids
Structural/Systems
Reason for Disparities
Individual/"Cultural"
Grounded Vision
Informal Learning
Abstract Appeal
Collective Benefits/ Social Good/Civic Engagement
Purpose
Individual Success

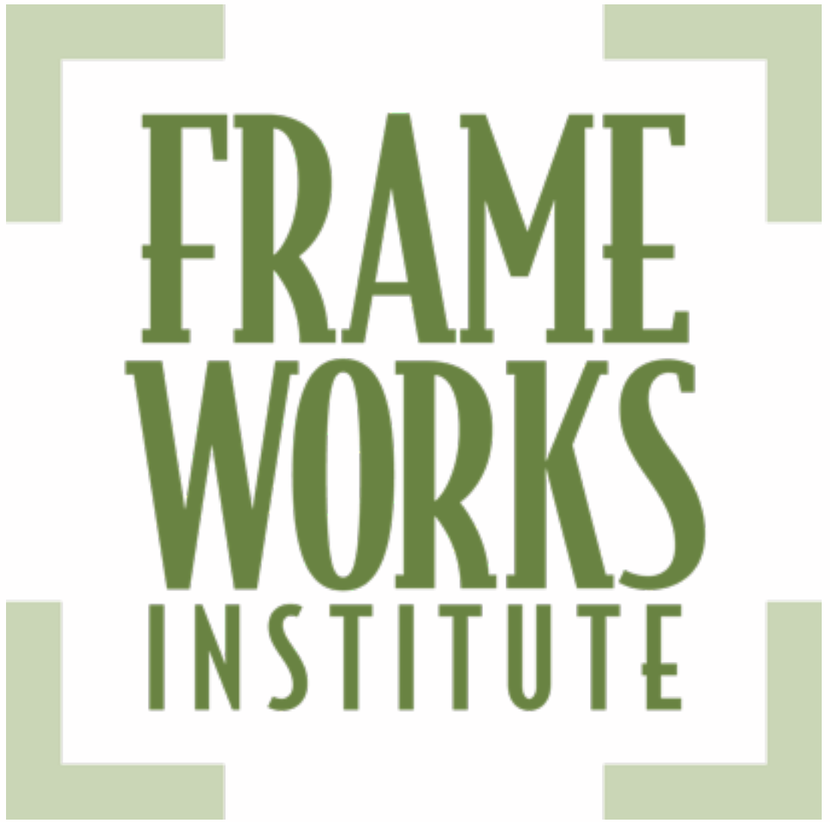
Creating Space and Momentum for Better Policy

Creating Space and Momentum for Better Policy

"Objectively, you do the right amount of education; do the right amount of meeting and greeting and everything else. That ain't what it's about. It's about where the political will is, and how much passion there is around the issue by a wide enough audience, that these guys will say - this train is going and I don't want to be off the train."

-Interview with state legislator

NCSL
NATIONAL CONFERENCE of STATE LEGISLATURES



For more information on this research, see

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