Some (Dis)Assembly Required: Speculative Making, Breaking, and Learning

Ruben R. Puentedura, Ph.D.

I. Everything Has… Changed?

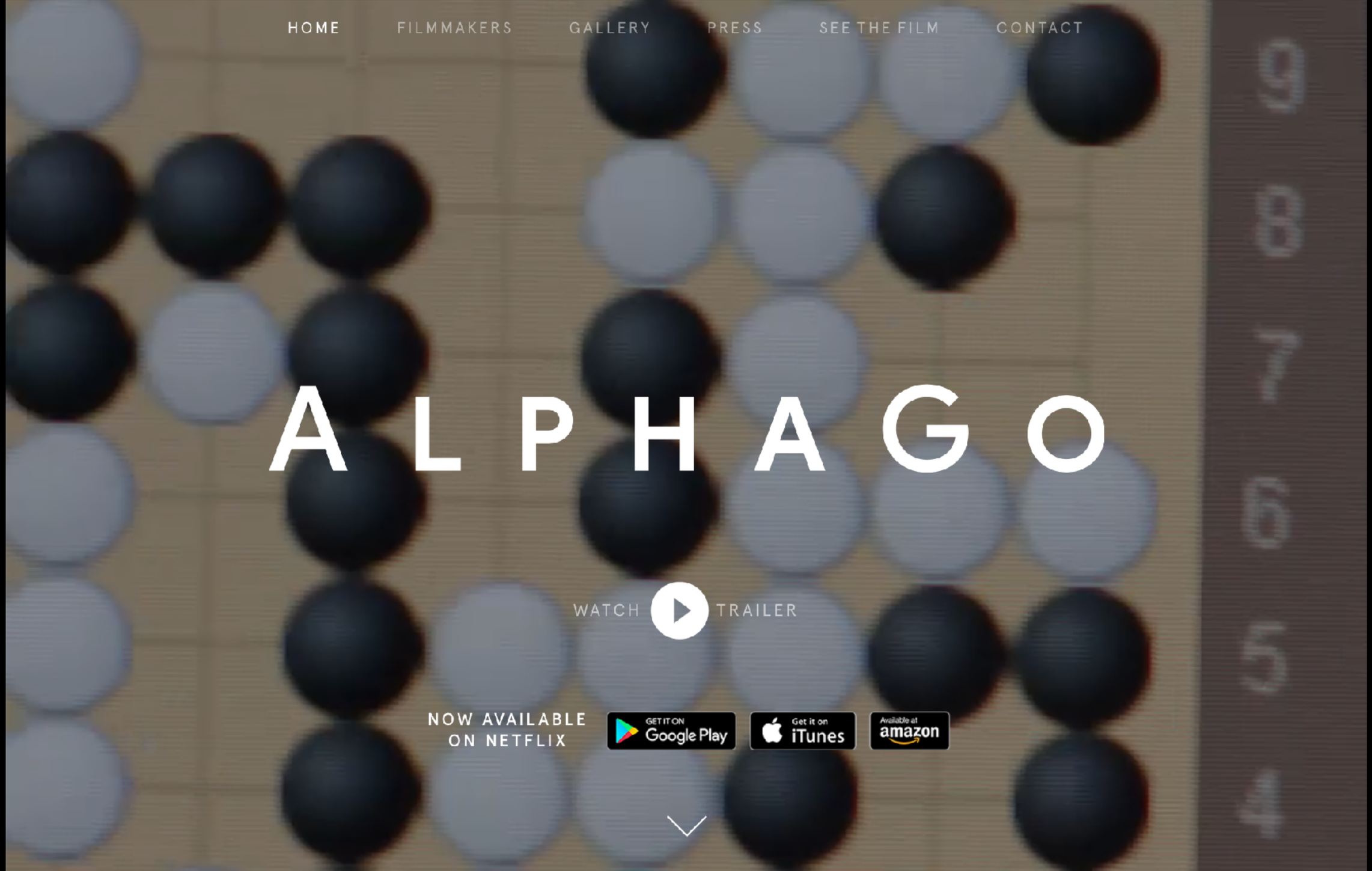
“Anger is an energy

Anger is an energy

Anger is an energy

Anger is an energy”

–Public Image Ltd., *Rise*


HOME
FILMMAKERS
GALLERY
PRESS
SEE THE FILM
CONTACT
ALPHAGO
WATCH
TRAILER
NOW AVAILABLE
ON NETFLIX
GET IT ON
Google Play
Get it on
iTunes
Available at
amazon

magenta

Make Music and Art Using Machine Learning

GET THE CODE TRY THE DEMOS

About Magenta

Magenta is a research project exploring the role of machine learning in the process of creating art and music. Primarily this involves developing new deep learning and reinforcement learning algorithms for generating songs, images, drawings, and other materials. But it's also an exploration in building smart tools and interfaces that allow artists and musicians to extend (not replace!) their processes using these models. Magenta was started by some researchers and engineers from the Google Brain team but many others have contributed significantly to the project. We use TensorFlow and release our models and tools in open source on our GitHub. If you'd like to learn more about Magenta, follow this blog, where we post technical details. You can also join our discussion group.

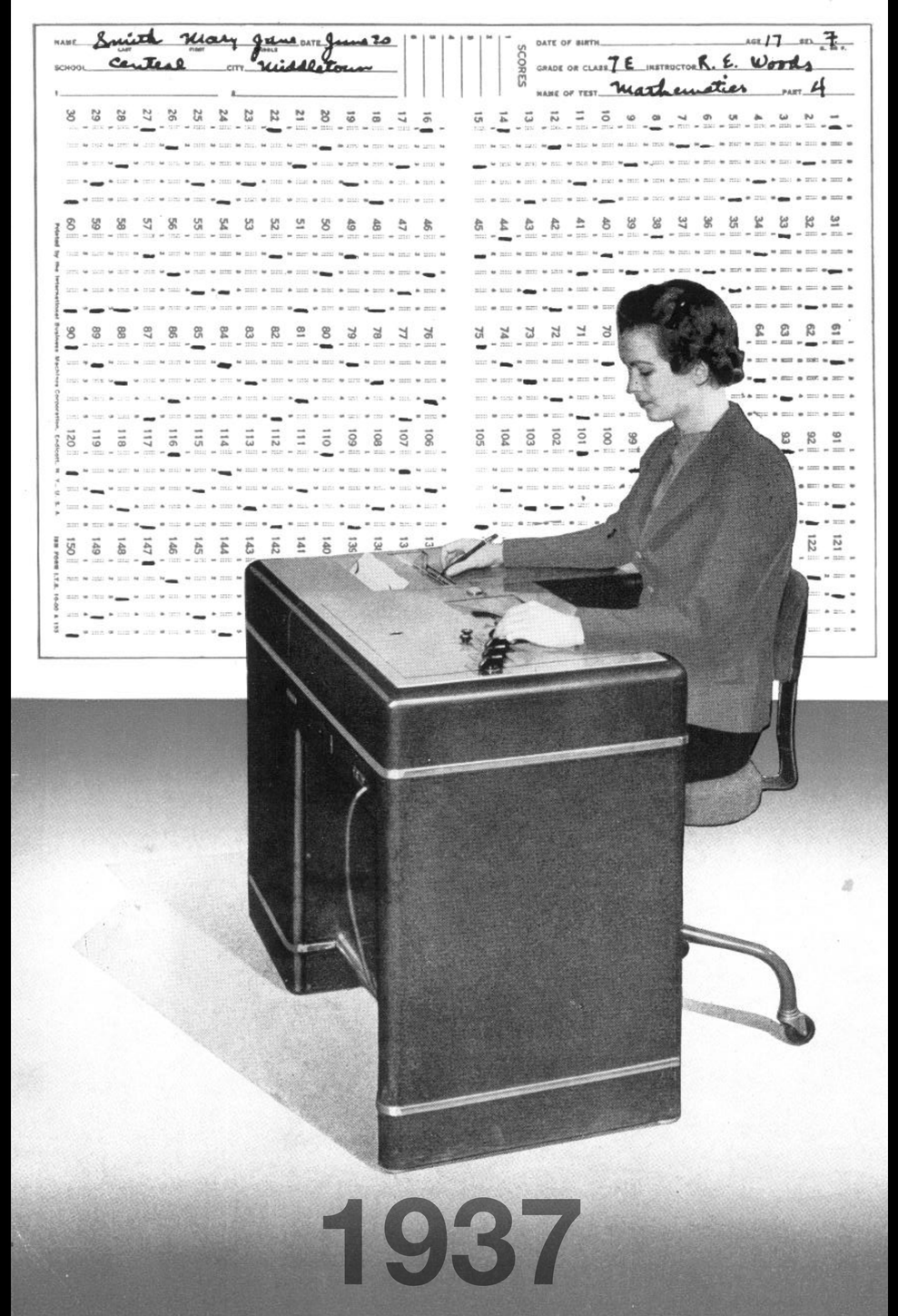
What is biodiversity?

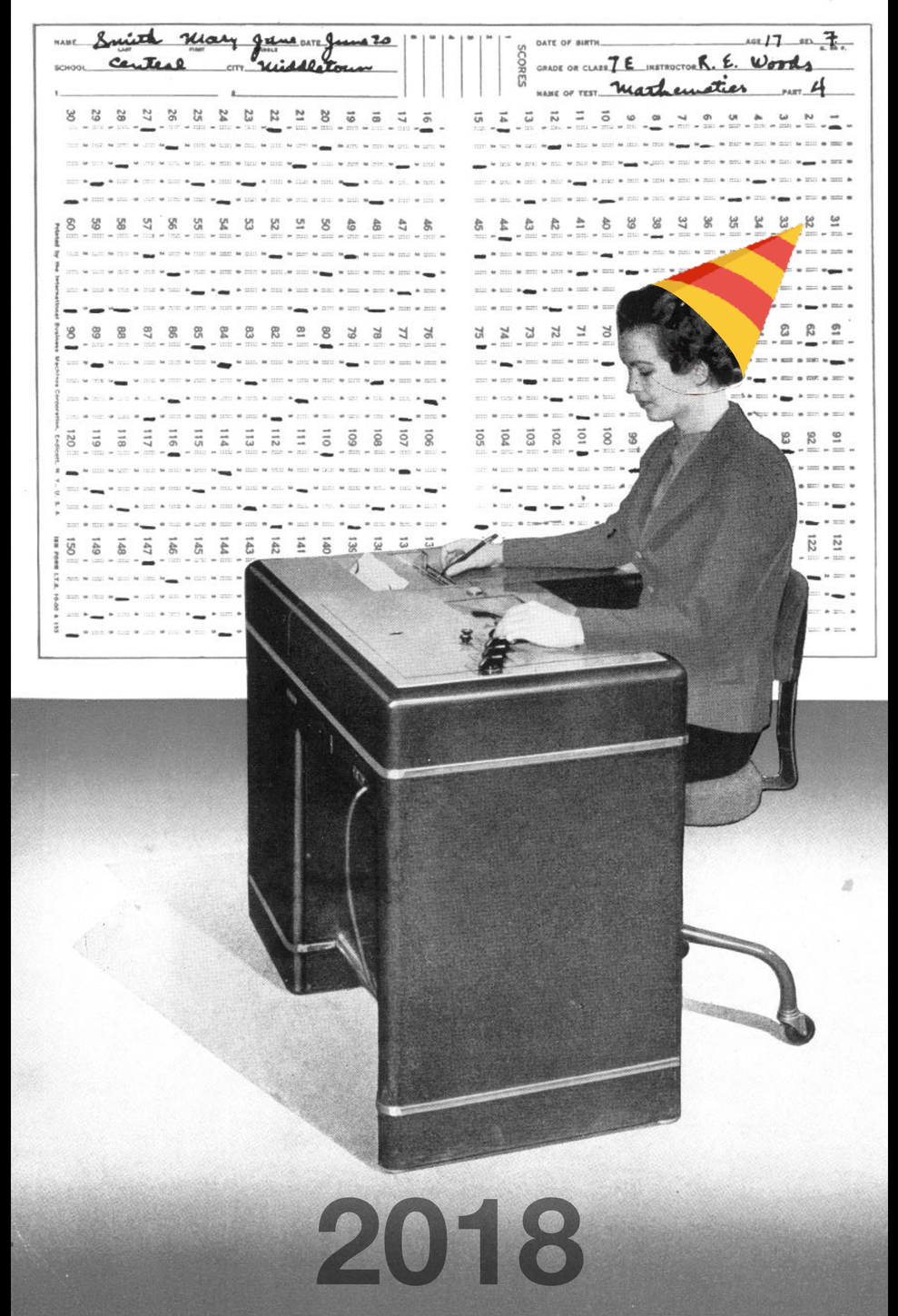
the rich variety of life in every ecosystem on Earth

the animal and plant species that live only in your backyard

the animals that live only in rainforests

26


NAME Smith Mary Jane DATE June 20
SCHOOL Central CITY Middletown
SCORES
DATE OF BIRTH AGE 17 SEX 7
GRADE OR CLASS 7E INSTRUCTOR R. E. Woods
NAME OF TEST Mathematics PART 4
1937


NAME Smith Mary Jane DATE June 20
SCHOOL Central CITY Middletown
SCORES
DATE OF BIRTH AGE 17 SEX 7
GRADE OR CLASS 7E INSTRUCTOR R. E. Woods
NAME OF TEST Mathematics PART 4
2018

II. The Risks Of Stasis

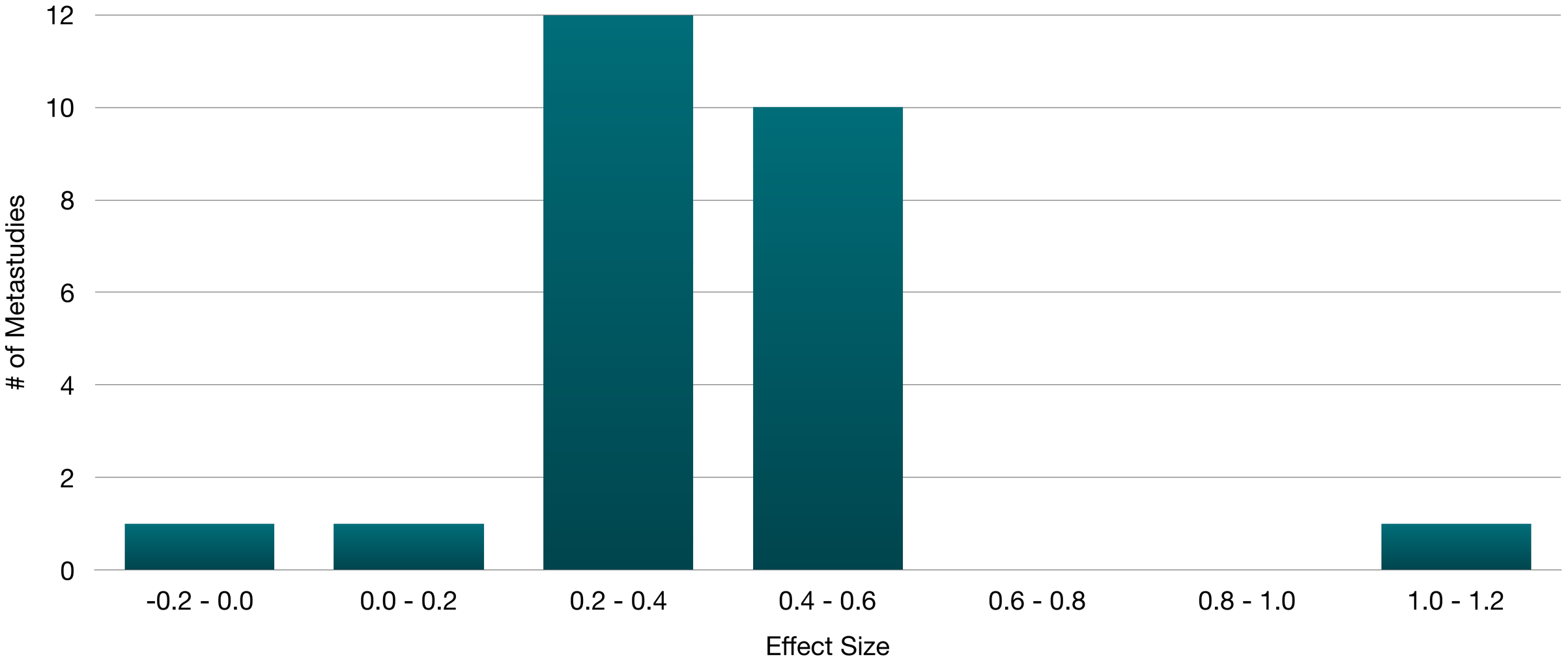
"I might be movin' to Montana soon

Just to raise me up a crop of

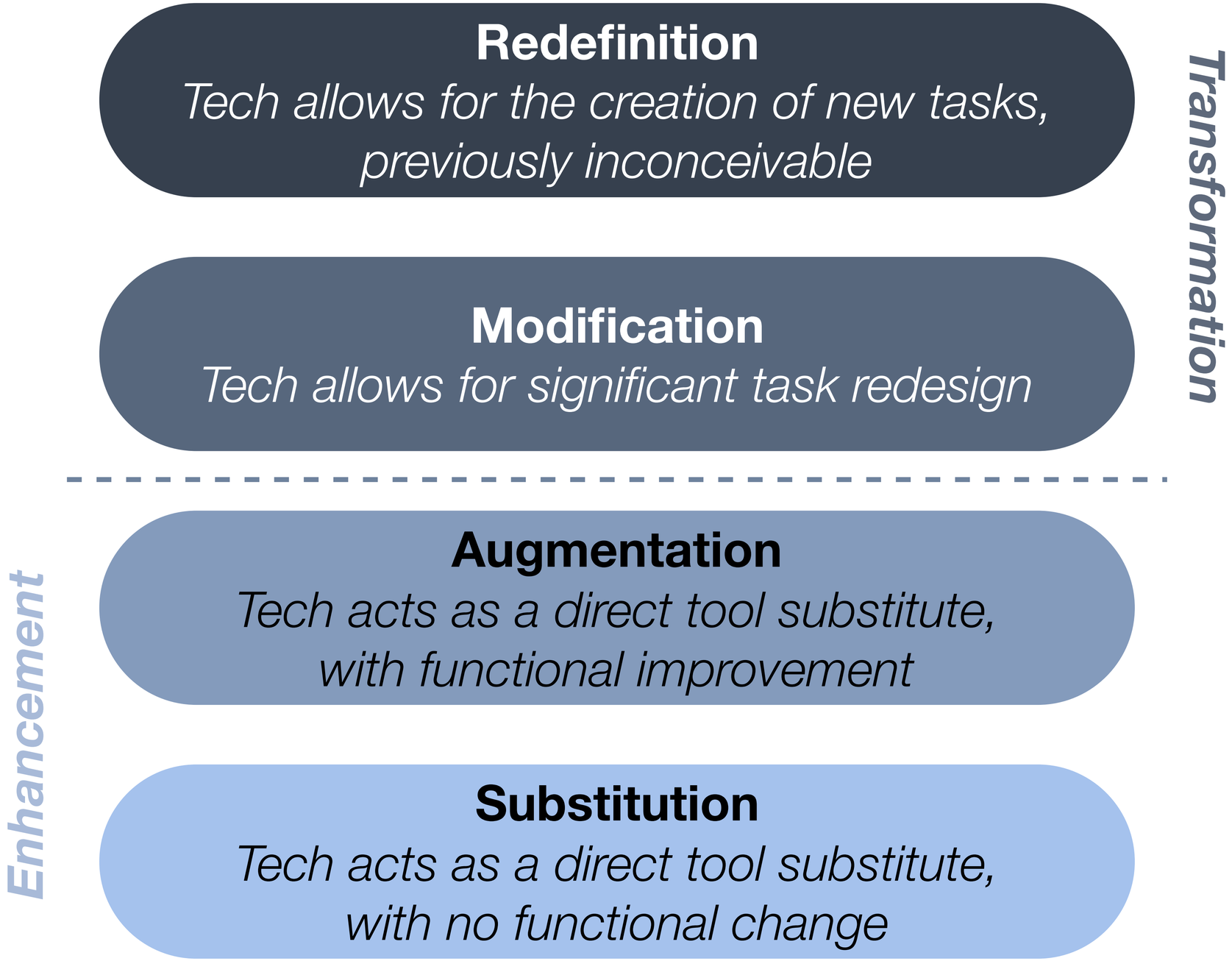
Dental floss"

–Frank Zappa, *Montana*

The Research: 1,097 Studies, 25 Metastudies, 19 Years

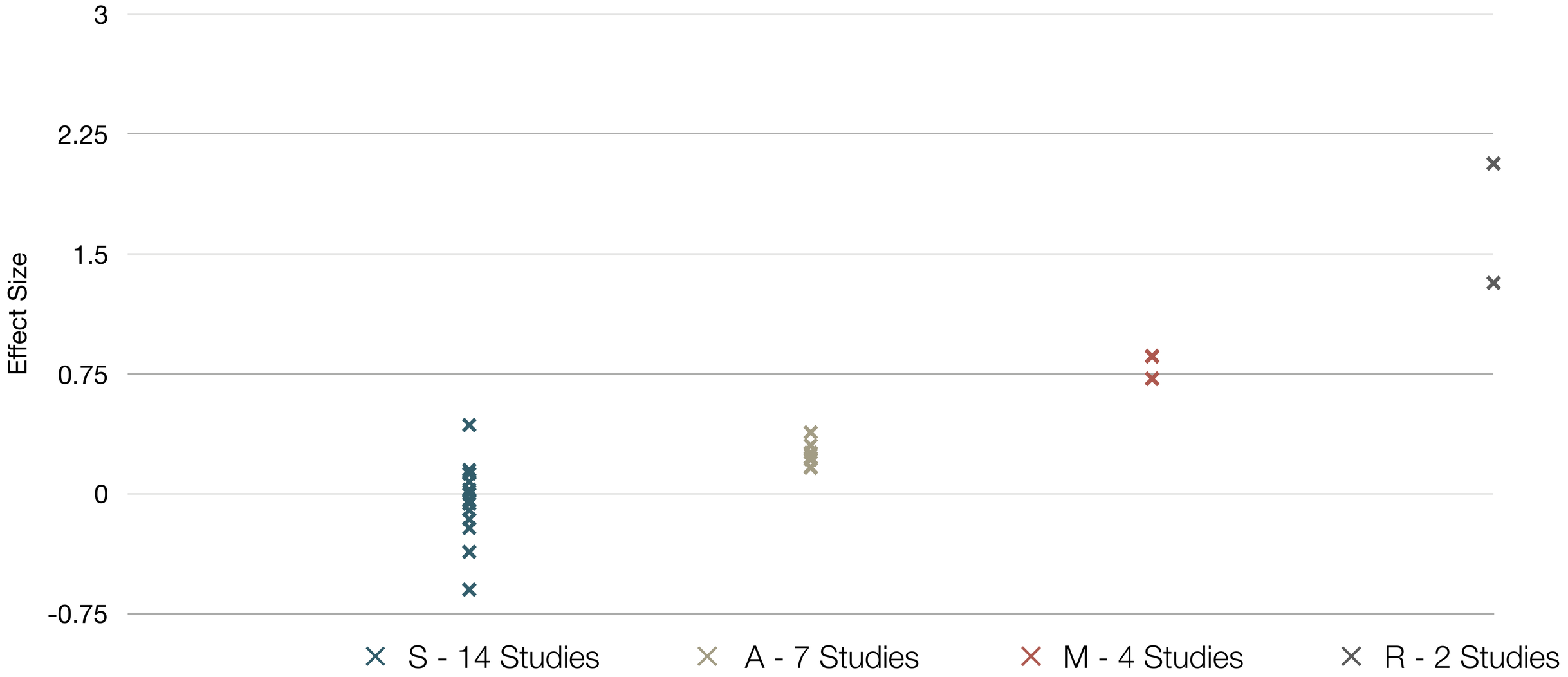


Tamim, Rana M., Robert M. Bernard, Eugene Borokhovski, Philip C. Abrami, and Richard F. Schmid. "What forty years of research says about the impact of technology on learning a second-order meta-analysis and validation study." *Review of Educational Research 81*, no. 1 (2011): 4-28.



Ruben R. Puentedura, *As We May Teach: Educational Technology, From Theory Into Practice*. (2009)

SAMR and the Use of Tablets in Education



Tamim, R.M., Borokhovski, E., Pickup, D., Bernard, R.M. & El Saadi, L. “Tablets for Teaching and Learning: A Systematic Review and Meta-Analysis." *Commonwealth of Learning (COL)* (2015).

III. Trust In Our Tools

"I'm guided by the beauty of our weapons

First we take Manhattan, then we take Berlin"

–Leonard Cohen, *First We Take Manhattan*

Social	Mobility	Visualization	Storytelling	Gaming
200,000 years	70,000 years	40,000 years	17,000 years	8,000 years

Ruben R. Puentedura, “Technology In Education: The First 200,000 Years” *The NMC Perspective Series: Ideas that Matter*. NMC Summer Conference, 2012.

The EdTech Quintet – Associated Practices	
Social	Communication, Collaboration, Sharing
Mobility	Anytime, Anyplace Learning and Creation
Visualization	Making Abstract Concepts Tangible
Storytelling	Knowledge Integration and Transmission
Gaming	Feedback Loops and Formative Assessment

IV. Revisiting An Old Friend

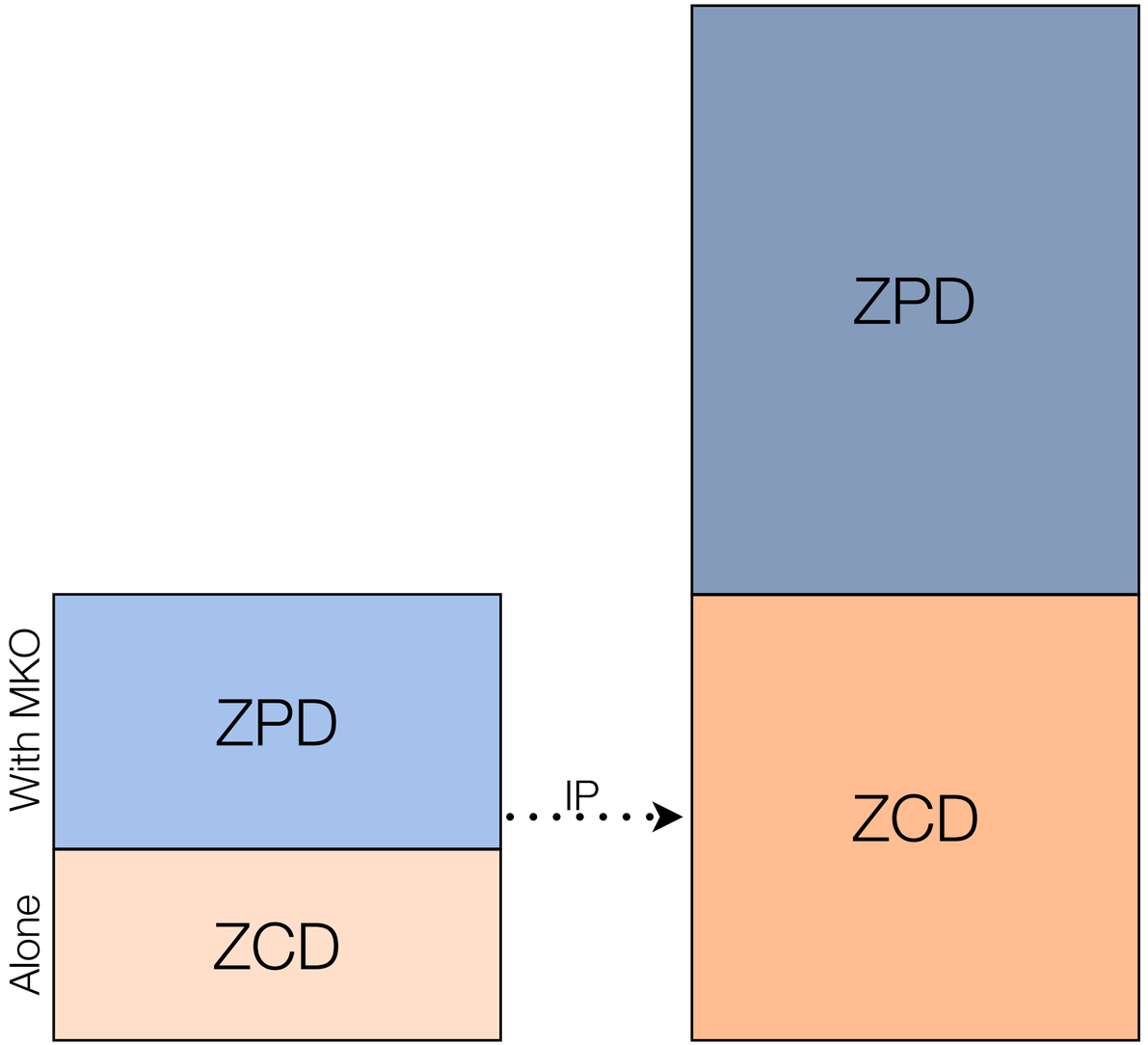
“I repeat myself when under stress

I repeat myself when under stress

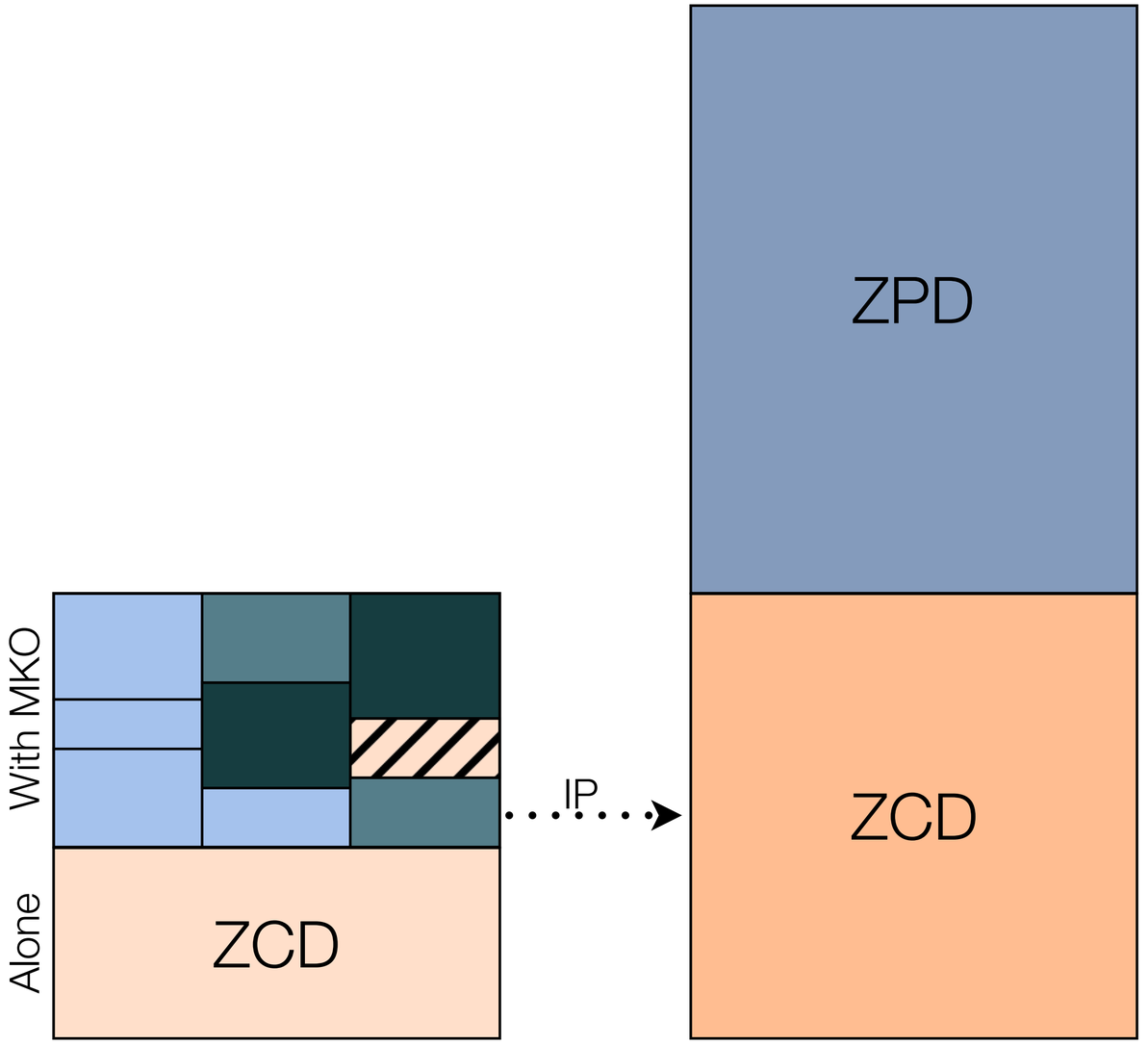
I repeat myself when under stress

I repeat myself when under stress”

–King Crimson, *Indiscipline*



Lev Vygotsky, *Mind in Society: The Development of Higher Psychological Processes*. Harvard University Press. (1978)



Galperin, P.Ia. “Stage by Stage formation as a method of psychological investigation”. *Journal of Russian and East European Psychology, 30*(4), 61-80 (1992)
Van Geert, Paul. "Vygotsky's dynamic systems." *Lev Vygotsky: Critical assessments* 4 (1997): 3-21.

The EdTech Quintet – Associated Practices	
Social	Communication, Collaboration, Sharing
Mobility	Anytime, Anyplace Learning and Creation
Visualization	Making Abstract Concepts Tangible
Storytelling	Knowledge Integration and Transmission
Gaming	Feedback Loops and Formative Assessment

The EdTech Quintet – Associated Practices	
Social	Provides diversity to the ZPD
Mobility	Creates the context for the process
Visualization	Aids in segmenting ZPD, bridging gaps
Storytelling	Aids in the integration of the ZPD
Gaming	Provides frameworks for independent practice

V. Making/Breaking Sense

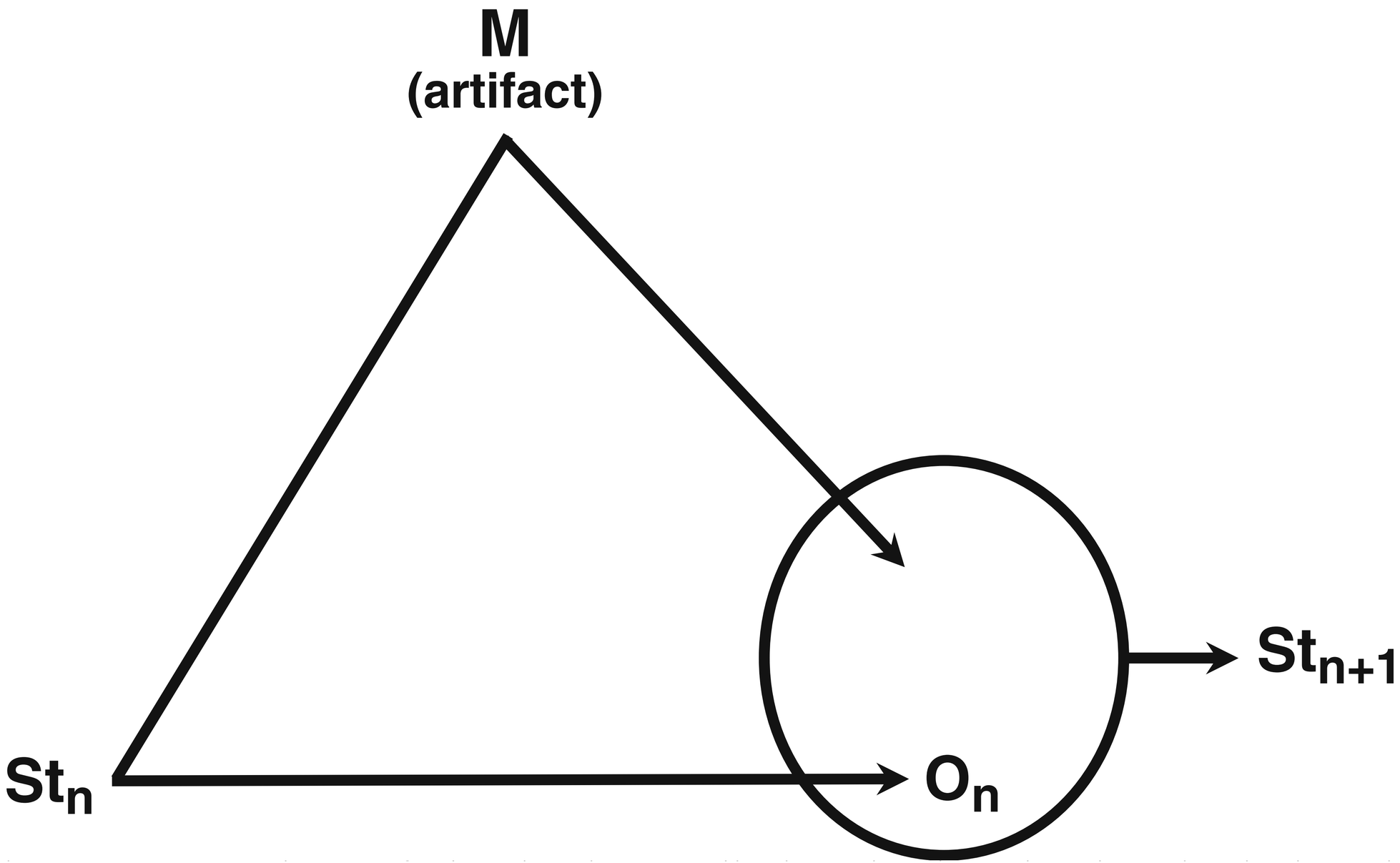
“Strange fascination, fascinating me

Changes are taking the pace I’m going through

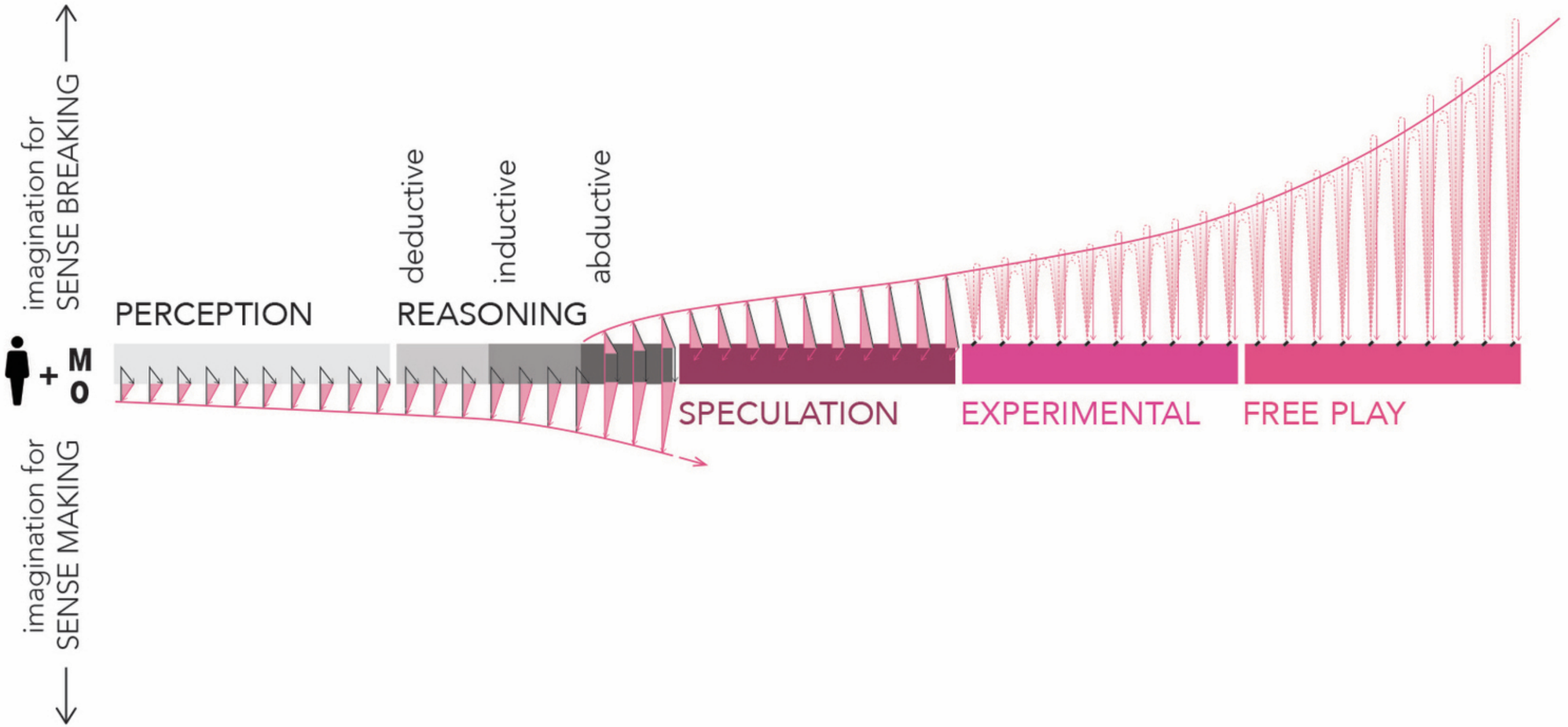
Ch-ch-ch-ch-Changes

(Turn and face the strange)”

–David Bowie, *Changes*



Pelaprat, Etienne, and Michael Cole. ""Minding the gap": Imagination, creativity and human cognition." *Integrative Psychological and Behavioral Science* 45.4 (2011): 397-418.



Ann Pendleton-Jullian & John Seely Brown, *Pragmatic Imagination: Single from Design Unbound*. Blurb (2016)

VI. Speculative Design

“When Buckminster Fuller came to Canada, he kept asking the same question:

“Have you ever really considered how much your buildings weigh?””

–Laurie Anderson, *The Big Top*

“The purpose of speculation is to unsettle the present, rather than predict the future.”

–Anthony Dunne and Fiona Raby
(referencing Stephen R.L. Clark)

Anthony Dunne and Fiona Raby, *Speculative Everything: Design, Fiction, and Social Dreaming*. MIT Press (2013)

Joey Ruiter, *Snoped*

Adelita Husni-Bey, *The Council*

VII. Speculative Learning Design

"Stop making sense,

Stop making sense…

Stop making sense,

Making sense"

–Talking Heads, *Girlfriend is Better*

What if we made…

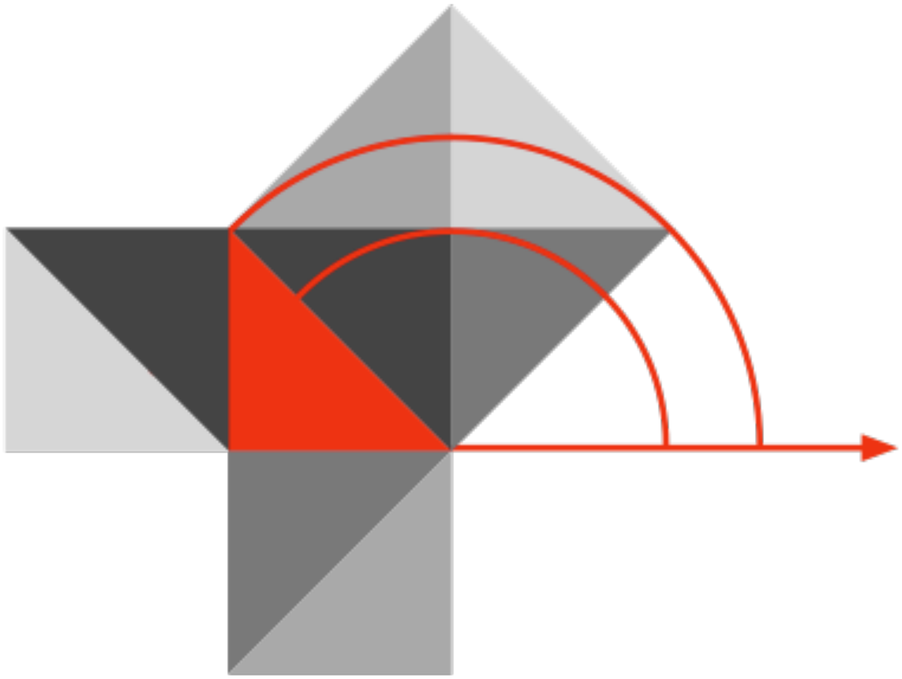
…an LMS that steered the student *away* from “best fit” courses?

…a course that used technology to *erase* all trace of its existence?

…a learning space design that *required* new forms of collaboration?

…or other learning experiences, that by design *challenged* what we’ve come to accept as the desirable/possible affordances of our toolset?

Hippasus



Blog: http://hippasus.com/blog/
Email: rubenrp@hippasus.com
Twitter: @rubenrp

This work is licensed under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 License.