



# Technology, Diversity and Human Connection

Stephen Downes

V UNEMI English Convention

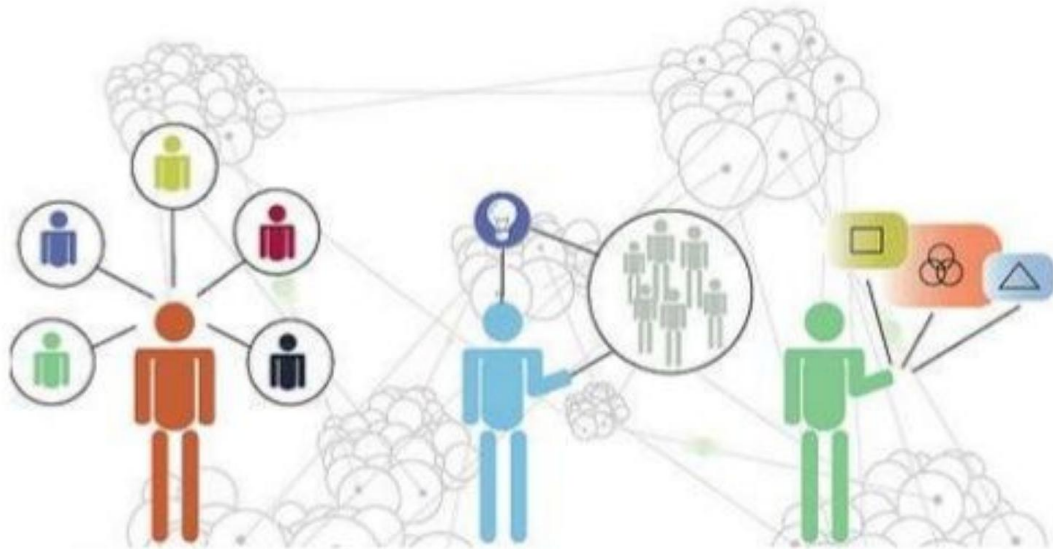
Mitagro, Ecuador

June 19, 2026

# Connectivism



# Connectivism

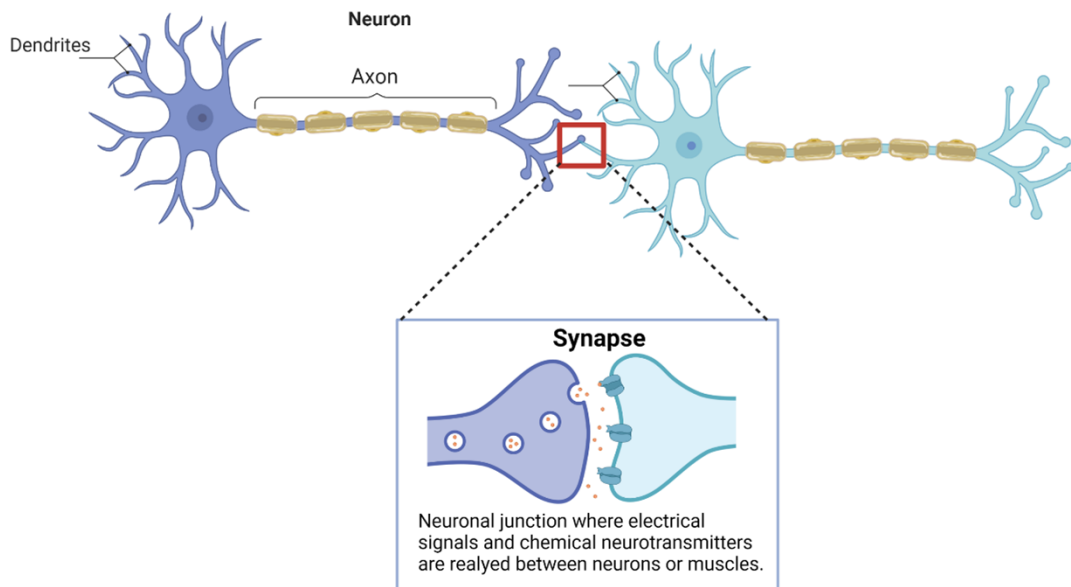


- Knowledge is distributed across a network of connections
- Learning consists of the ability to construct and traverse those networks

<https://wwmit.blogspot.com/2018/07/connectivism-new-learning-theory.html>

<https://uark.pressbooks.pub/edtech/chapter/connectivism-and-connective-knowledge-2/> 'What Connectivism Is'

# Knowledge



- Is literally the set of connections formed by actions and experience
- The properties and constraints of linguistic structures are not the properties and constraints of connectivism or connectivist knowledge.

<https://uark.pressbooks.pub/edtech/chapter/connectivism-and-connective-knowledge-2/> 'What Connectivism Is'

# Knowledge



- Is recognition
- It is the activation of patterns of connectivity in a network created from previous experience
- Distributed representation is a product of... the neurosciences and in connectionist work on recognition tasks

Churchland and Sejnowski

[http://books.google.ca/books/about/The\\_Computational\\_Brain.html?id=wVll6u0tzXoC&redir\\_esc=y](http://books.google.ca/books/about/The_Computational_Brain.html?id=wVll6u0tzXoC&redir_esc=y)

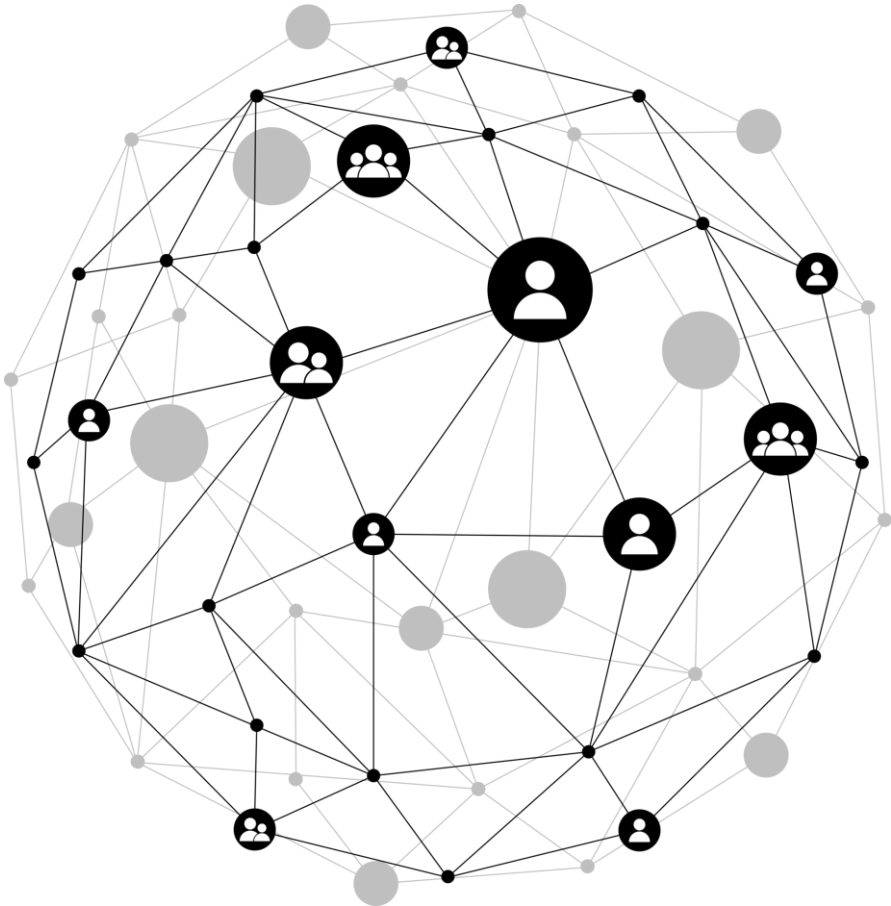
# Knowledge



- Is emergent
- That is, it is organization of the connected entities, not the nature or contents of the entities
- It is not inherent in the system producing it, but depends entirely on the perceiver being able to recognize it.

<https://uark.pressbooks.pub/edtech/chapter/connectivism-and-connective-knowledge-2/> 'Theoretical Synergies'

# Connectivity



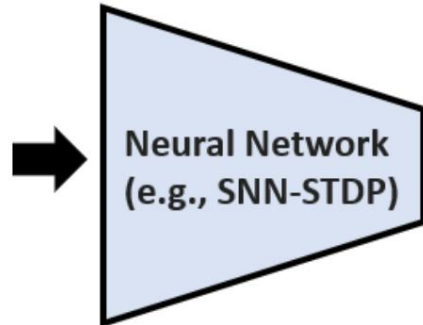
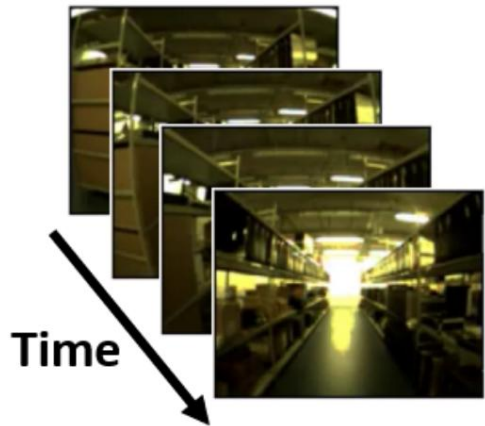
- Two entities are connected if and only if a change of state in one entity can cause a change of state in the second entity

Churchland and Sejnowski

[http://books.google.ca/books/about/The\\_Computational\\_Brain.html?id=wVll6u0tzXoC&redir\\_esc=y](http://books.google.ca/books/about/The_Computational_Brain.html?id=wVll6u0tzXoC&redir_esc=y)

# Learning

Continual Data Stream



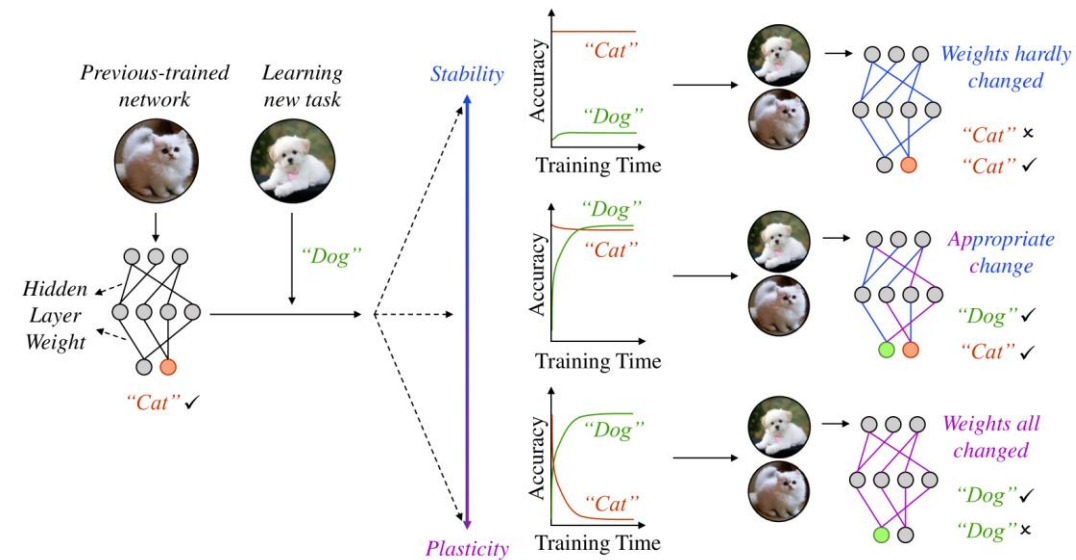
Continual Learning *without storing past experience*

- Is the creation of patterns of connectivity in a network created from previous experience
- Learning theories are specifically generalized descriptions of how networks of entities become connected

<https://arxiv.org/pdf/2407.17305> p. 15

<https://uark.pressbooks.pub/edtech/chapter/connectivism-and-connective-knowledge-2/> 'What Connectivism Is'

# Learning Theories



- Can describe the *conditions* that are supportive of network connectivity
- Can describe the *mechanisms* that result in the creation of network connectivity
- Can describe the *kinds* of network connectivity

# Technology



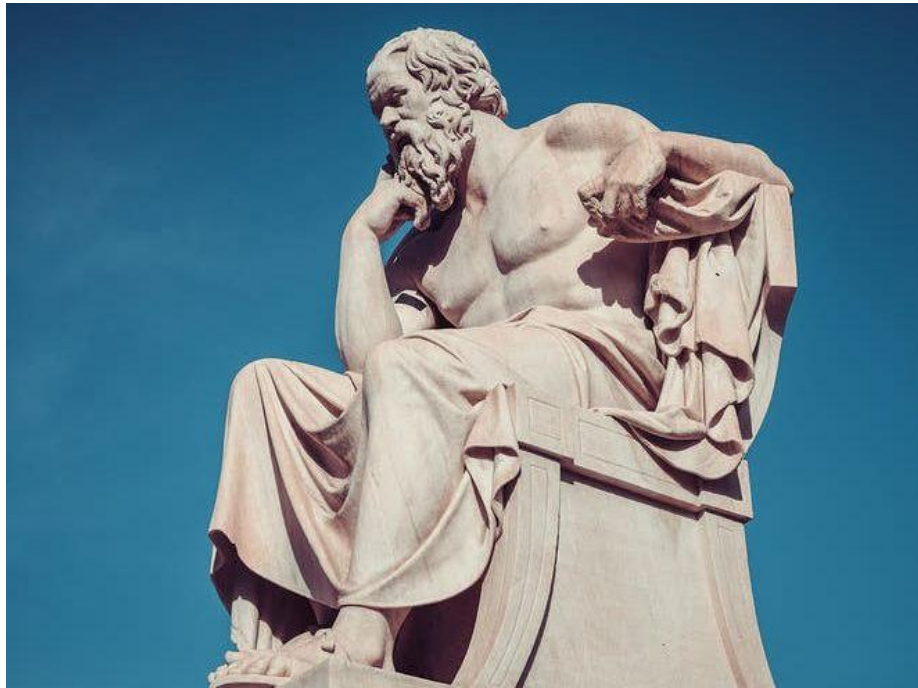
# Technology



- These days, we think of technology as ‘digital technology’
- But it’s not just a collection of tools, platforms and gadgets
- It can be understood as the “orchestration of phenomena for some purpose”

<https://openpraxis.org/articles/10.55982/openpraxis.18.2.1117>

# Teleology

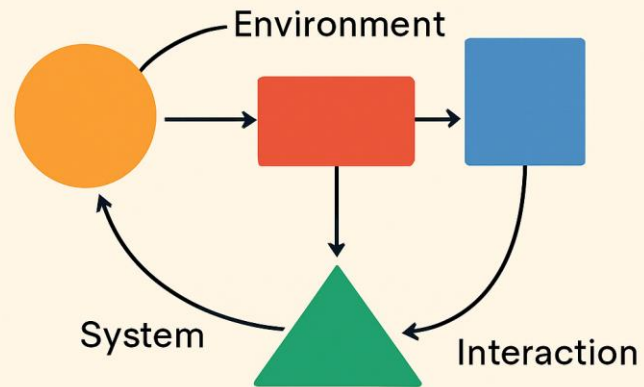


- A philosophical concept that explains causes in terms of ends, purposes, or goals.
- Either things have inherent purposes, or they are *created* for the achievement of some externally defined purpose

<https://en.wikipedia.org/wiki/Teleology>

# Systems

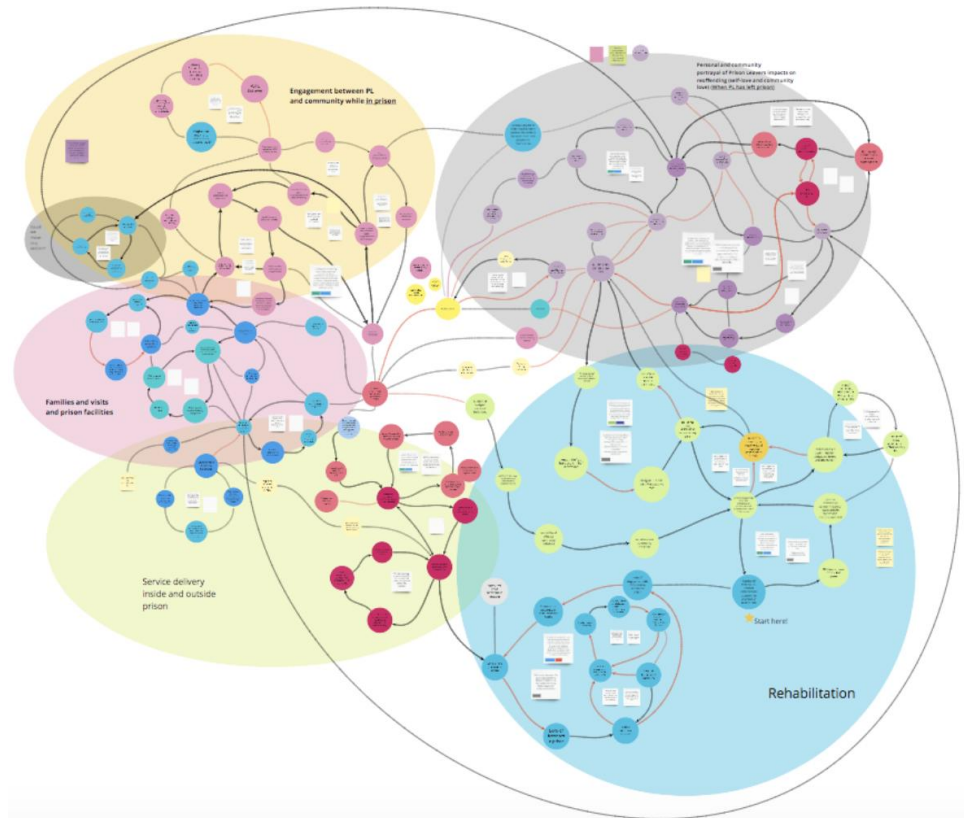
## General Systems Theory



- A system is a network with a purpose
- Stafford Beer: “the purpose of a system is what It does” (POSIWID)
- I would add: “... what is does *for us*”

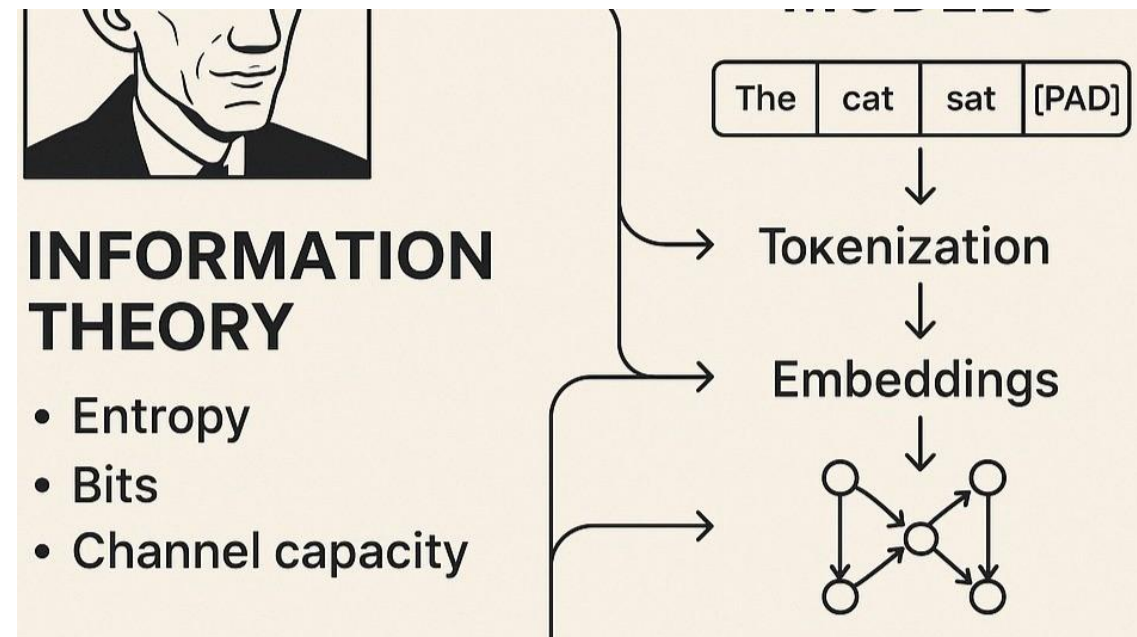
Beer, S. (1985). Diagnosing the System for Organizations. Chichester: John Wiley & Sons.

# Learning Technology



- What is the purpose of learning technology? Three answers:
  - To *transmit* knowledge
  - To *construct* knowledge
  - To *grow* knowledge

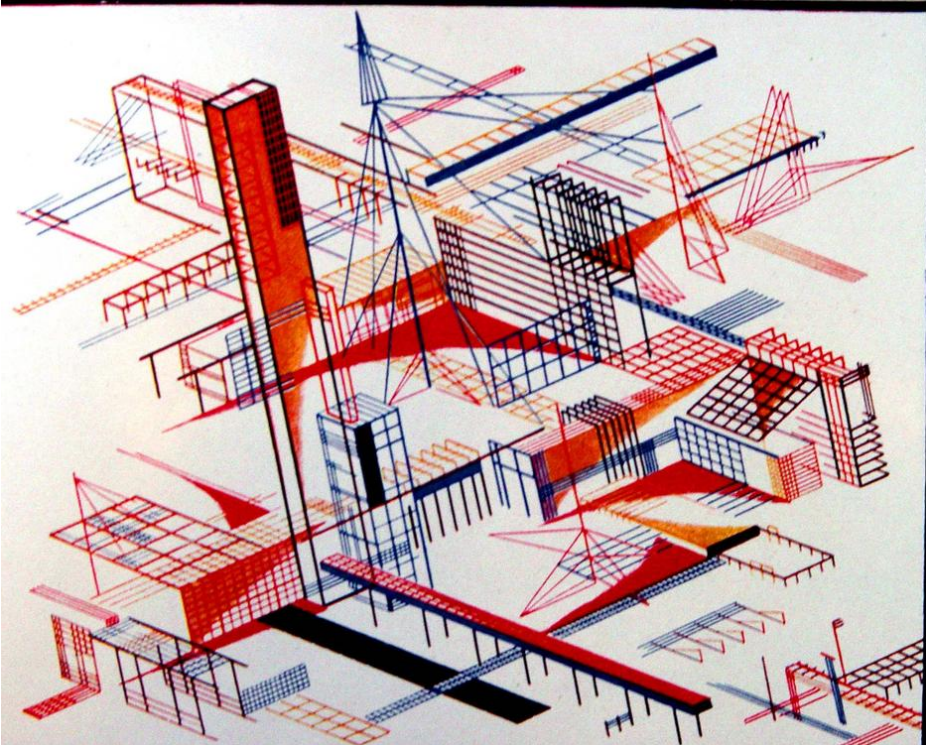
# Transmission



- Based in cognitivist and information-theoretic approaches
- Values *fidelity* of information transmission
- Error: depicting knowledge as a physical symbol system

Michael G. Moore, Theory of Transactional Distance  
[https://www.researchgate.net/publication/262488021\\_The\\_Theory\\_of\\_Transactional\\_Distance](https://www.researchgate.net/publication/262488021_The_Theory_of_Transactional_Distance)

# Construction



- Understands that knowledge is not transmitted but is *created* anew in each individual learner
- Has origins in philosophical and scientific constructivism
- Error: conflating *public* knowledge and *personal* knowledge

<https://www.simplypsychology.org/constructivism.html>

# Growth

- Knowledge develops naturally in each individual learner

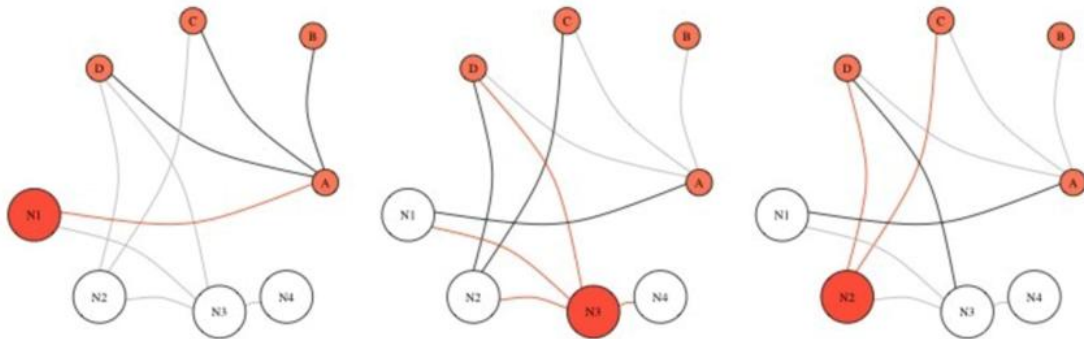
- It is an adaptive response to experience

- The *purpose* of knowledge is separated from the *origin* of knowledge

Preferential attachment

Preferential acquisition

Lure of associates



[https://www.researchgate.net/figure/Network-visualizations-of-network-growth-models-described-in-the-text-Smaller-nodes-are\\_fig2\\_359191824](https://www.researchgate.net/figure/Network-visualizations-of-network-growth-models-described-in-the-text-Smaller-nodes-are_fig2_359191824)

# Diversity



# Diversity

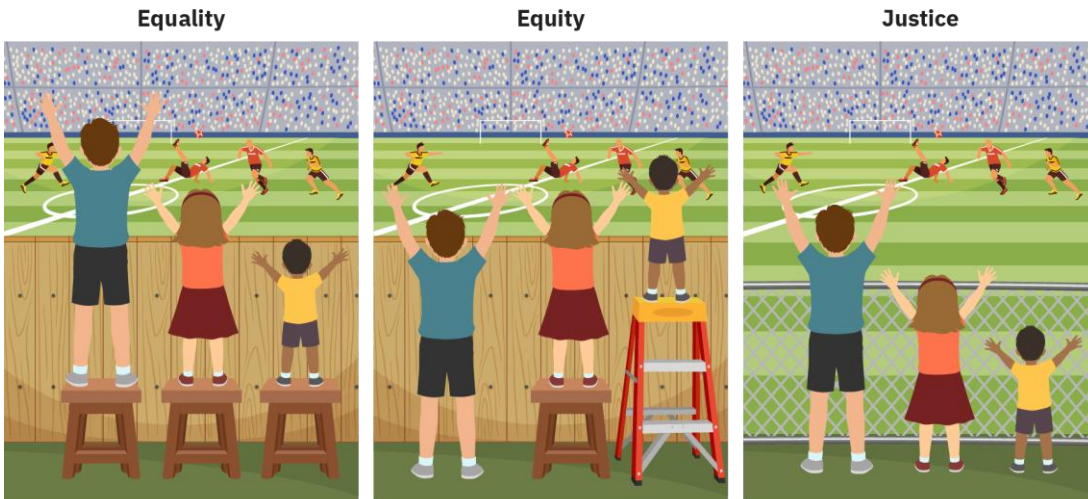


- Difference, rather than sameness
- References practices that create equitable and supportive learning environments that “respect, value, and respond to the differences among learners,” regardless of background, identity, or ability.

UNESCO <https://www.unesco.org/en/query-list/d/diversity-and-inclusion-education>

# Equity, Inclusion

- All, not some
- Supporting diversity by promoting more equitable and inclusive education systems.



It is assumed that everyone benefits from the same equal conditions.

Some people are given accommodations to allow them to have equal access. All are treated equitably.

All inequities have been eliminated and all individuals are equal with no additional accommodations.

OECD: [https://www.oecd.org/en/publications/equity-and-inclusion-in-education\\_e9072e21-en/full-report.html](https://www.oecd.org/en/publications/equity-and-inclusion-in-education_e9072e21-en/full-report.html)

# Ecuadorian Context

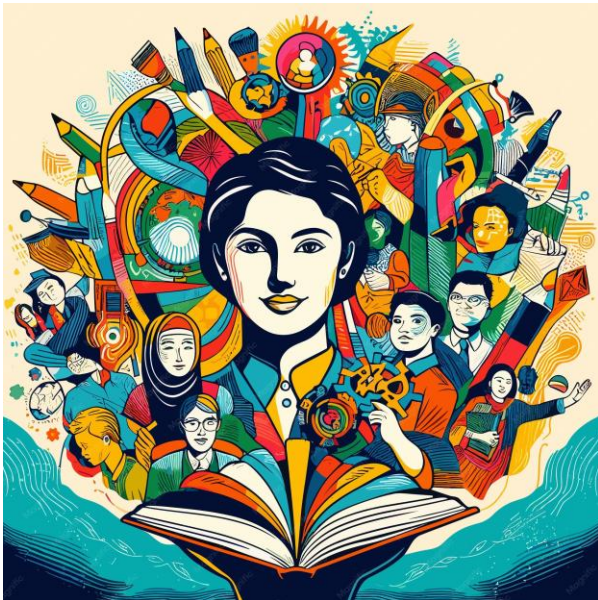


- Multicultural, multinational, inclusive
- A vision aligned with the country's geographic, cultural, and linguistic diversity and with the rights of communities, peoples, and nationalities.

<https://www.acnur.org/fileadmin/Documentos/BDL/2008/6716.pdf> Art. 358, 377

<https://ecuadorweb.net/la-diversidad-cultural-del-ecuador-que-es-definicion-y-ejemplos/>

# Objectives – Individual and Ethical



- Human Rights – “This approach centers on the human being, both in their individual and social dimensions. Education is a right that enables the development of other rights to achieve a dignified life.”

[https://www.gob.ec/sites/default/files/regulations/2025-02/codificado\\_de\\_la\\_ley\\_org%C3%A1nica\\_de\\_educaci%C3%B3n\\_intercultural.pdf](https://www.gob.ec/sites/default/files/regulations/2025-02/codificado_de_la_ley_org%C3%A1nica_de_educaci%C3%B3n_intercultural.pdf) p.8

# Objectives – Social & Economic

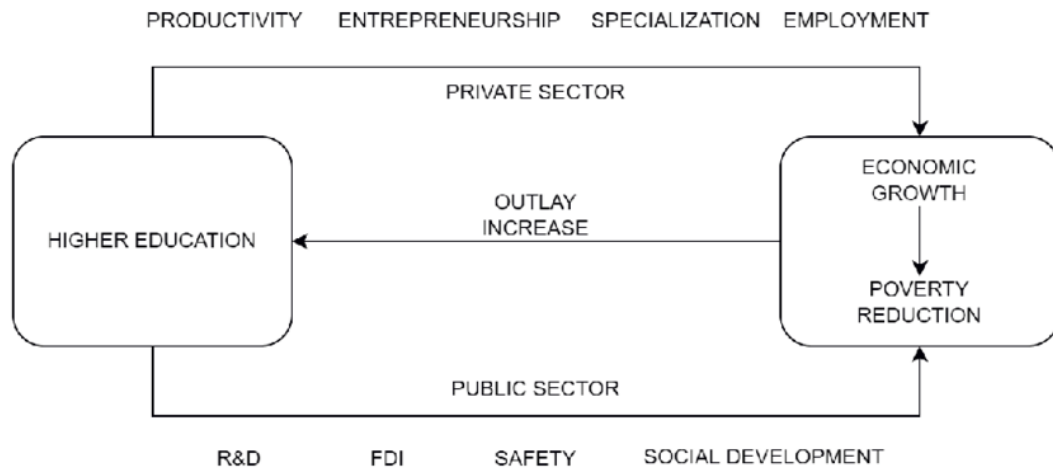


Image:

[https://www.researchgate.net/publication/369639173\\_On\\_the\\_effectiveness\\_of\\_remuneration\\_of\\_public\\_universities\\_lecturers\\_in\\_Poland](https://www.researchgate.net/publication/369639173_On_the_effectiveness_of_remuneration_of_public_universities_lecturers_in_Poland)

- The enhancement of the country's productive capacities
- Training individuals to launch their own individual or collective productive initiatives
- Strengthening of an entrepreneurial culture.

[https://www.gob.ec/sites/default/files/regulations/2025-02/codificado\\_de\\_la\\_ley\\_org%C3%A1nica\\_de\\_educaci%C3%B3n\\_intercultural.pdf](https://www.gob.ec/sites/default/files/regulations/2025-02/codificado_de_la_ley_org%C3%A1nica_de_educaci%C3%B3n_intercultural.pdf) p. 11

# But... *Why?*

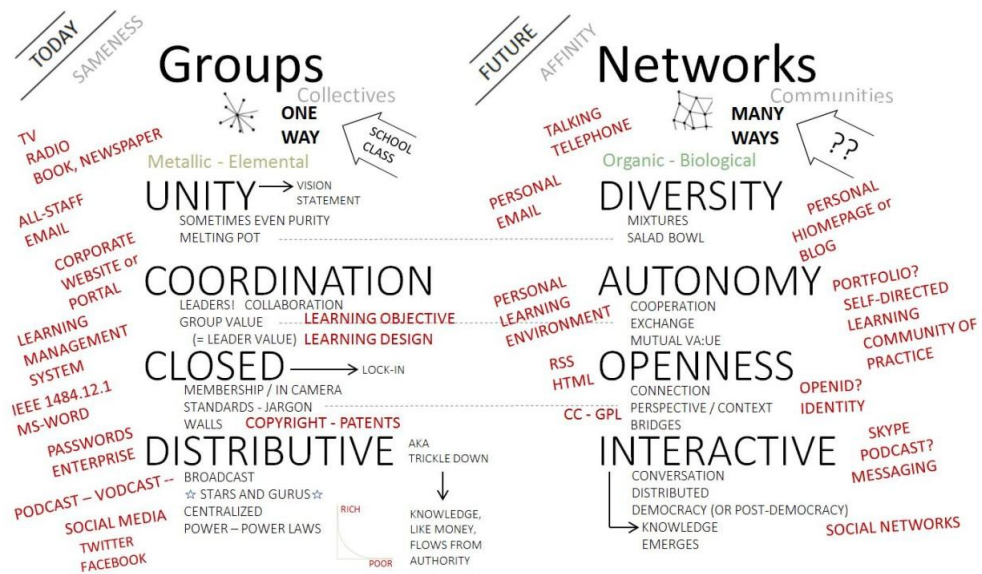


- The need for diversity does not *follow* from the reasons we tend to support diversity
- As a result, education as a field is prolific with appeals to sameness

[https://www.gob.ec/sites/default/files/regulations/2025-02/codificado\\_de\\_la\\_ley\\_org%C3%A1nica\\_de\\_educaci%C3%B3n\\_intercultural.pdf](https://www.gob.ec/sites/default/files/regulations/2025-02/codificado_de_la_ley_org%C3%A1nica_de_educaci%C3%B3n_intercultural.pdf) p. 11

# The Semantic Condition

- Autonomy, diversity, openness, interactivity
- These describe the *conditions* that are supportive of network connectivity
- Without diversity, connections do not grow and change



<https://www.downes.ca/presentation/477>

# Varieties of Diversity



- Diversity is more than just intersectionality
- Each person has their own unique experiences, and hence, knowledge
- Diversity includes purpose and goals, learning preferences, technology options, more...

<https://mastodon.social/@cpi/116768876643811670>

# Building Diversity: Be Yourself



- Cultivating diversity of experience is a key to personal learning
- This engages and requires the other conditions of autonomy and openness
- And it involves understanding that social knowledge *emerges* through interaction from diverse perspectives

# Human Connection

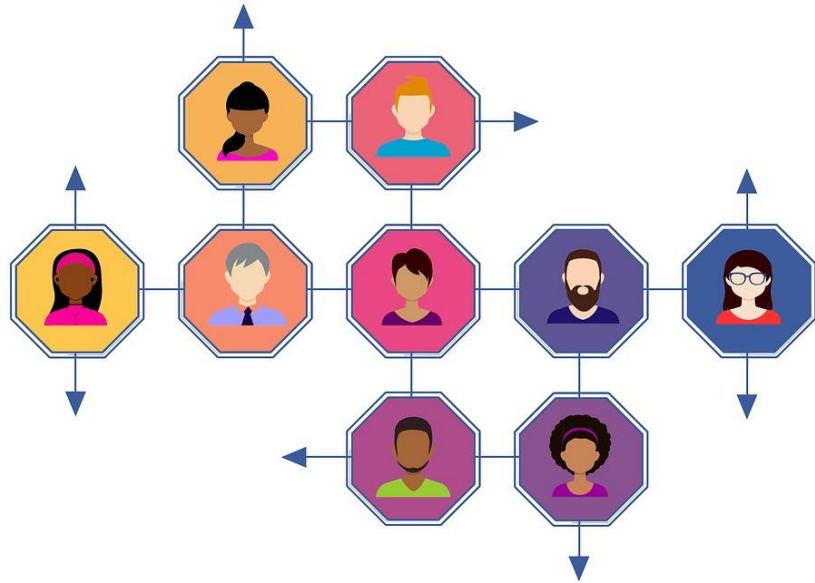


# Platforms



- In the LMS era, the platform organized the learning experience.
- Today, we're just adding AI to the platform.
- Learners do not define their own learning environment. It is defined for them by institutions, vendors, recommender systems, or AI defaults.

# Personalization



- The system adapts to the learner
  - Vendor-defined pathways
  - Platform owns and controls the data
  - AI recommends
  - Optimization
- an Instructivist approach

# Collaboration

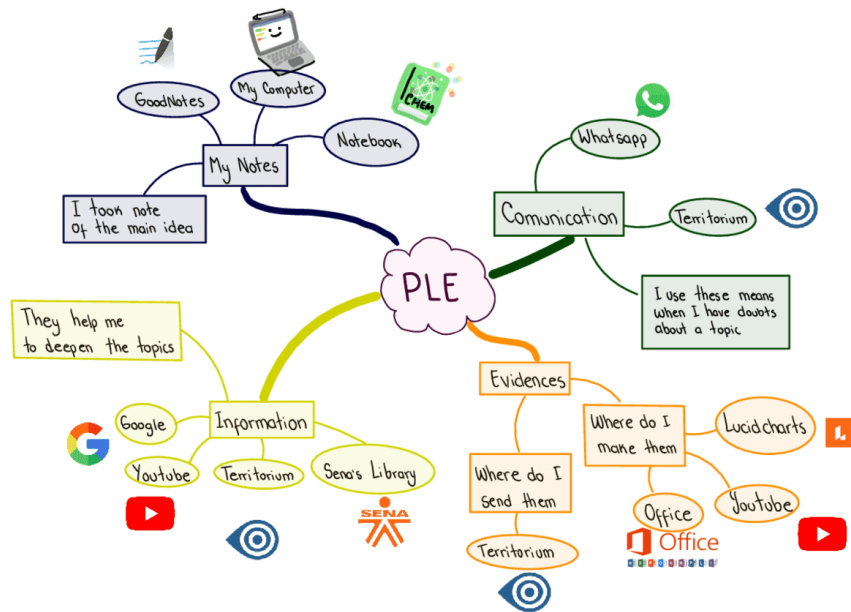


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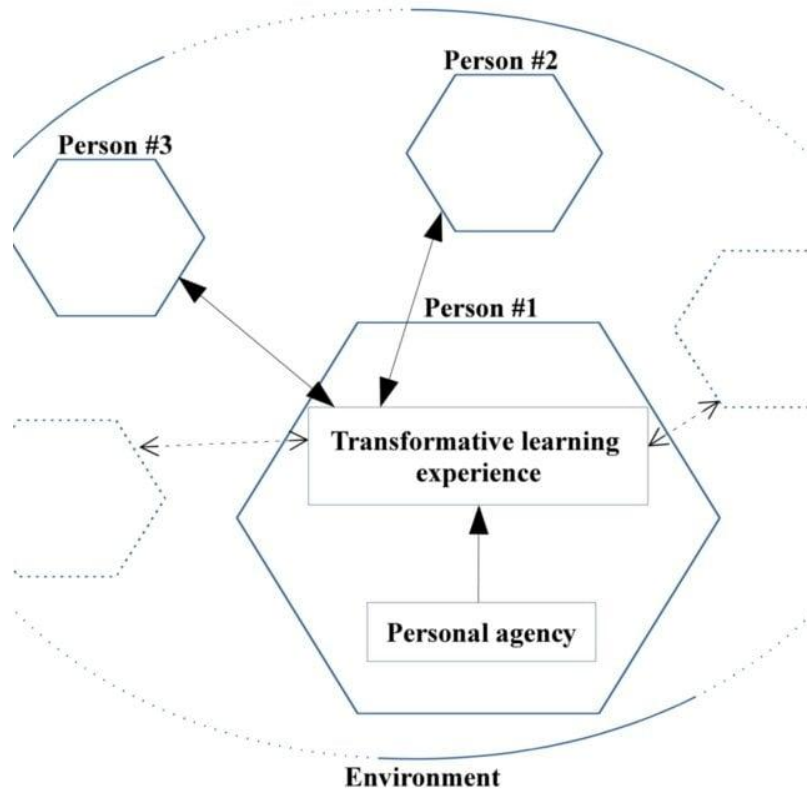
- The system creates communities
- Socially-defined pathways
- Platform owns and controls the data
- AI participates as collaborator
- Process
  - a Constructivist approach
  - both are based on sameness

# Personal Learning

- The learner shapes the system
  - Learner-defined architecture
  - Learner owns and controls the data
  - AI and technology are *directed*
  - Agency
- a Connectivist approach
- based on diversity, autonomy

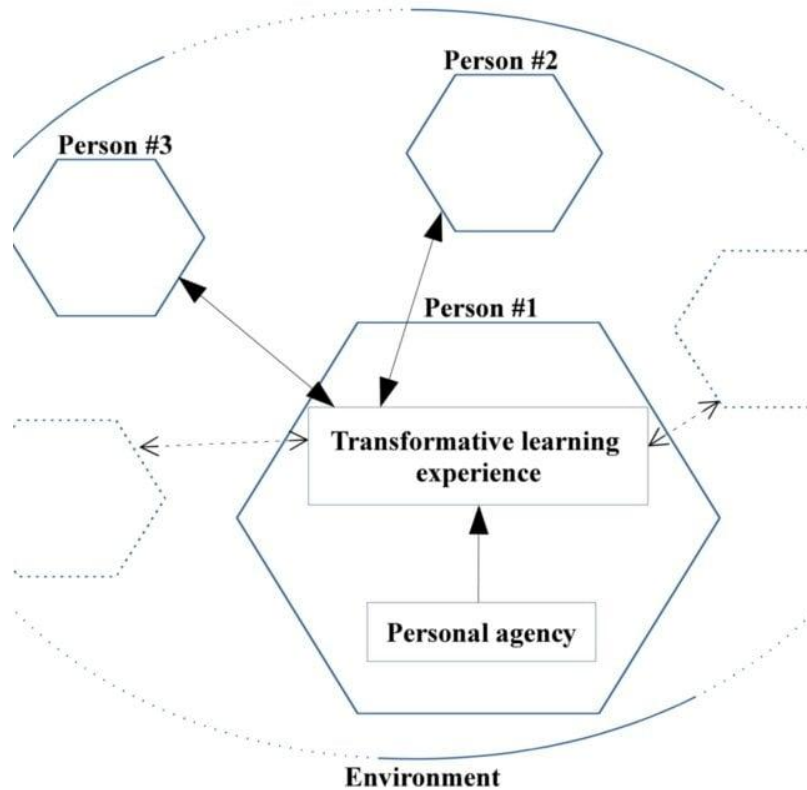


# Agency



- Technology should be an architecture of agency
- People choose and connect their sources, tools, identities, storage, publishing destinations, collaborators
- It helps them overcome the barriers, promotes inclusion, and encourages diversity

# Architecture



- An architecture of agency defines the interfaces between the elements of a learning environment so people can select, replace, combine, or reject components.
- It should allow different learners to build different environments based on their own needs, values, culture and commitments.

# Stephen Downes

<https://www.downes.ca>

