VIII CONGRESSO AMAZÔNICO EAD

Conectividade,
ecossistemas de inovação
e empreendedorismo na Amazônia.

24 a 28
novembro
2025

28/11 | 19h às 20h30

Stephen Downes

Palestra Encerramento

Conectivismo, Aprendizagem Distribuída
e Inovação Digital na Amazônia

INSTITUTO FEDERAL
Rondônia

Overview

Connectivism, Distributed Learning and Digital Innovation in the Amazon

- This talk connects the principles of connectivism and networked learning to the opportunities and challenges of the digital Amazon.
- We will explore how distributed learning practices, open resources and local networks can enhance connectivity, innovation and entrepreneurship in contexts with limited infrastructure and rich sociocultural diversity
- And place it in the context of educating for understanding: explanation, comprehension, and the challenge for connectivism

https://www.even3.com.br/congressoamazonico2025-569044/

Context: What We Saw This Week

- João Vianney Valle dos Santos on how connectivity can break down historical barriers of geographic and social isolation, promoting inclusion, sustainable development and appreciation of local knowledge
- The new Decree regulating Distance Education (EaD) in Brazil
- How different actors – institutions, managers, teachers, students and technologies – interact to form dynamic ecosystems
- The role of assistive technologies in promoting accessibility and inclusion of students with disabilities in the context of Distributed Education
- The role of Government Schools in the formation of public servants committed to the ESG (Environmental, Social and Governance) principles, especially in the face of the challenges and commitments made at COP30

… and so much more

Outline

- Reshaping Pedagogical Practice
  - Understanding in the Age of AI: Connectivism Vindicated
  - Distributed Education: Ecosystems, Assessment, and Networked Actors
  - Inclusion, Accessibility, and Cultural Diversity
- Application and Innovation
  - Design Thinking, b_thinking, and Systemic Problem-Solving
  - ESG, Digital Sovereignty, and Sustainable Governance
  - Academic Practice: Research, Documentation, and Reflexivity

1

Understanding in the Age of AI

Connectivism Vindicated

The Lesson From AI

- **Learning is more than just remembering**: even if we can remember every text in the world there is still something more we need to do.
- **There is a difference** between following a recipe and being a *chef de cuisine*
- **We need to understand *why***: learning is based in *explanation* and *comprehension*

Connectivism Vindicated

- **Distributed cognition**: knowledge is externalized into tools, platforms, and networks, not confined within individual minds.
- **Pattern-based comprehension**: systems operate through networks rather than being based on rules
- **Emergent understanding**: understanding arises from dynamic interactions between learner, content, community, and technology.
- **Network augmentation**: alternative explanations through analogies, perspectives, and conceptual blends

Understanding

- not rules, facts and remembering, but explaining, contextualizing, and connecting.
- not internal templates, but participation in dynamic networks.
- This becomes especially clear in:
  - AI-assisted postgraduate teaching
  - AI-driven pedagogical mediation
  - AI-enabled research practices and causal modeling
  - Regional digital sovereignty strategies

2

Distance Education

Ecosystems, Assessment, and Networked Actors

Context

- **Distributed Education** (EaD) means any form of learning that takes place outside the classroom or learning institution
- EaD provides a concrete arena where understanding must be **defined, supported, and evaluated** within complex sociotechnical ecosystems
- **Learner challenges** are not merely academic but physical, social, technological, cultural

What We've Learned from EaD

- The danger of treating learning as:
  - Information transfer
  - Schema insertion
  - Memorization
- Instead, learners succeed when they:
  - Form meaningful connections
  - Collaborate across nodes
  - Use tools strategically
  - Work in their own context

What We Learned from MOOCs

- In distributed learning environments, no single actor knows everything
- Knowledge is not ‘transferred’ but *grows* or *emerges* from interaction between institutions, teachers, students and technologies
- Understanding is co-created through diversity, equity, inclusion
- Explanations are contextual
  - What might work in one domain may not apply in another

Challenges

- EaD ecosystems require clarity about
  - How abstract concepts are learned in distributed settings
    - Finding out what we have in common
    - Turning it around to make them look themselves
  - How causal understanding is developed through interaction rather than direct instruction
    - Mechanisms of localization, (knowledge) translation

Assessment

- Traditional educators are learning that students can just use AI to submit tests and assignments
- Distance educators have always understood this risk
  - It is difficult is not impossible to exercise control at a distance
  - Though educators must in some way certify, the most important assessment has always been self-assessment

What are We Measuring?

- Rubrics and competency frameworks clarify expectations, but they also reveal the need for assessment that captures the student's *understanding*
- This includes:
  - Their ability to articulate explanations
    - In specific contexts
    - Using metaphors and illustrations
  - Their capacity to make connections across domains
  - Their skill in navigating novel environments and contexts

3

Inclusion, Accessibility, and Cultural Diversity

Context

- Inclusion efforts described this week include:
  - Assistive technology
  - Accessibility for the deaf
  - Digital inclusion in the Amazonia
  - Inclusion of Black and Beradiera literature
- Why?
  - Understanding is inherently plural
  - Comprehension drives social inclusion
  - Explanation drives context

Understanding is Social and Contextual

- Meaning emerges through interaction with culturally, geographically, and linguistically situated networks
- Connectivity breaks down:
  - Geographic isolation
  - Social exclusion
  - Structural inequities
- …allowing understanding to emerge from broader participation

Multiple Modes of Expression

- Pedagogy and Technological Support
  - Assistive technologies that provide visual, auditory, gestural, and tactile modes to comprehension
  - Alternative representational systems
  - Explanatory resources tailored to different cognitive profiles
- Diversity of Perspective
  - Linguistic practices (languages, signing, orality)
  - Cultural narratives
  - Regional epistemologies

The Semantic Principle

- Based on an understanding of how networks succeed
  - ‘Success’ means ‘capacity to learn’
  - Realized physically through growth, adaptation
- Diversity of Perspective
  - Autonomy - each node organizes itself
  - Diversity - each node represents distinct context or perspective
  - Openness - receptive to input from outside, each other
  - Interactivity - knowledge is emergent, not transmissive

Assessment

- No fixed grammars
  - Based less on rules and frameworks and more on interaction and adaptation
- Development of understanding become intercultural
  - Interaction: community meaning systems
  - Adaptation: distributed representational ecologies
- Interoperability, Growth and Adaptation
  - Can we applying concepts across sociocultural modalities
  - Can we use metaphor as a tool for social function such as identity, resistance, and belonging

4

Innovation

Design Thinking and Systemic Problem-Solving

Context

- Innovation frameworks such as
  - b_thinking
  - MVP development
  - Organizational innovation methodologies
- redefine innovation as creative, iterative, and user-centered
  - Contrast with ADDIE, waterfall
  - Break down client-server model
  - “Nothing about us without us”
- Understanding as iterative explanation, innovation as problem-solving (c.f. Lauden)

Innovation Frameworks

- Traditional models assume:
  - Stable schemas
  - Linear processes
  - Predefined problem spaces
- Innovation frameworks instead operate through:
  - Iterative prototyping
  - Systemic insights
  - Emergent user requirements
  - Cooperation and consensus
- If you're forcing a solution onto a community, you haven't understood the problem

Connectivism and Innovation

- Innovation is not static, but rather is:
  - Pragmatic and contextual
  - Situated
  - Interactive
  - Distributed (based on sketches, prototypes, user stories)
- Designing and Innovating iteratively requires that we:
  - Explain the rationale behind our decisions
  - Understand user needs empathetically
  - Reframe problems and solutions to adapt to evolving contexts
  - Integrate feedback and develop new models

Multiple Problems, Multiple Perspectives

- Innovation emphasizes the difficulty of modeling:
  - High-level abstraction in networks
  - Distributed causal reasoning
  - Group creativity and collaborative understanding
- Assessment when innovation is multi-modal
  - Is there a consistency of principles across health, education, public services?
  - Can problems and solutions be reframed as useful metaphors or analogies (“users as co-creators,” “ecosystems,” “journeys,” etc.)

5

Digital Sovereignty and Sustainable Governance

Context

Term	In Simple Words	Focus
ESG (Environmental, Social, and Governance)	Responsible behavior in environment, society, and leadership	Metrics & principles
Digital Sovereignty	Control over digital technology and data	Autonomy & independence
Sustainable Governance	Running institutions in ways that support long-term wellbeing	Policy & administration

Public Policy Themes

- Public policy themes heard this week
  - ESG post-COP30
  - digital sovereignty in the Amazon
  - and interoperability in public services
- Public policy requires understanding as a collective, institutional, and societal process
- We’re dealing with:
  - Systemic explanation
  - Long-range causal reasoning
  - Abstraction across social, environmental, and technological domains

Values

- No single principle (e.g. ‘self-interest’) can define public policy
- Policies will be based on a range of principles, including:
  - Promotion of cultural virtues and cultural memory
  - Defining a network of responsibilities and obligations
  - Creating wealth and avoiding risks
  - Negotiating a fair and just social contract
  - Reflecting family and social relationships and care
- These are all expressed differently in different contexts

Connectivism and Public Policy

- Policies depend on interconnected institutions
- Knowledge emerges from shared deliberation
- Decision-making involves distributed expertise

- The old view: public administrators “learn rules.”
- The new view: they must:
  - Understand systemic complexity
  - Navigate ecological, digital, and social networks
  - Integrate local knowledge with global commitments

Assessing Public Policy

- Policy needs to be described and understood in multiple contexts across multiple epistemologies
  - Are they based on cross-sector communication and interactive decision-making?
  - Is there a story describing how abstractions (e.g., ESG) become actionable in local contexts?
  - Are there concrete metaphors that express core principles, e.g. “ecosystem of innovation,” “fabric of governance,” “network resilience”

6

Academic Practice

Research, Documentation and Reflexivity

Context

- Academic workflows
  - qualitative research methods
  - repository submission practices
  - teacher professional development
- Perception of understanding as disciplined, documented, and reflexive
- Challenges include funding, scholarship, recognition
- Community context includes application and practice, knowledge translation, etc.

Academic Networks

- Network artifacts:
  - Citation networks
  - Shared digital repositories
- Network structures:
  - Interpretive communities
  - Methodological triangulation
- Network practices:
  - Transparent causal reasoning
  - Multiple forms of explanation
  - The ability to articulate interpretive frameworks
  - Critical reflection on evidence

Comprehension and Explanation

- Understanding as a community process
- Scholarship challenges rigid models of cognition because:
  - Understanding develops through discursive exchange
  - Meaning is mediated by tools (software, databases, repositories)
  - Interpretation evolves with new connections
- Academic comprehension and explanation are:
  - Historically contingent
  - Methodologically diverse
  - Inherently social
    …not reducible to formal structures.

Assessing Academia

- Research pushes connectivism to explain:
  - How rigor emerges in distributed knowledge networks
  - How abstraction operates across methodological frameworks
  - How causal reasoning is negotiated and justified
- Assessing academic understanding
  - Is it explainable?
  - Is it testable?
  - Is it transferable to other domains?

Concluding Unscientific Postscript

Beyond Objectivity and Subjectivity

- “The phrase Everything is relative is spoken emphatically by the very people for whom the atom or its elements are still the ultimate reality.” - Emil Brunner
- Knowledge and understanding are based on pattern recognition, and patterns are both objective and subjective at the same time
- Communities and social development are perhaps best understood from this perspective, as we are engaged in the process of both knowing about them and being in them at the same time

Thank You

- Stephen Downes
- https://www.downes.ca