Sustaining the Open Educational Resources (OER) Commons Through a Systems Ecology Lens

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Open educational resources (OERS)—learning materials in the public domain or licensed for free reuse—have been heralded as a great enabler of the basic human right of access to education.[1] As a component of the information commons[2], OERs 'crowdsource' resources, from formally published works to lessons created by individual educators, leveraging networks of socially-produced knowledge.[3]

However, there are barriers to the wide scale adoption of OERs as an educational panacea. For example, there are gaps in OERs' fit with formally recognised education structures.[4] Other difficulties include variable quality, lack of a single discovery interface (although a plethora of repositories exist), and lack of metadata organisation[5]. Moreover, it is problematic to conceptualise education as simply a transfer of information without accounting for complex inputs and outputs in the process. In other words, just because OERs are available, it does not necessarily follow that they facilitate learning.

In light of these challenges, this paper draws on systems ecology as a way of conceptualising a sustainable, organically-formed, and interconnected OER commons. [6] Parallels to ecological processes in the OER commons are examined, specifically:

- Producers
- Consumers
- Energy flows: funding, technical infrastructure, human capital
- Processes of natural selection and absorbing decay
- Feedback loops, e.g., achievement of learning outcomes
- Factors that determine the ecosystem balance, e.g., copyright, metadata

Unlike a natural ecosystem with finite resources, there is no physical limit to the participatory online commons, which is a self-perpetuating system through the very act of its exploitation. However, to thrive, it must have sources of nourishment and clean up of decay as well as governance structures to ensure its symbiosis with social systems. An OER commons fuels knowledge building through a

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[1] Paris OER Declaration, 2012 World Open Educational Resources (OER) Congress UNESCO, Paris, June 20-22, 2012. Retrieved from http://ru.iite.unesco.org/files/news/639202/Paris%20OER%20Declaration_01.pdf

[2] As elaborated by Cunningham, R. (2014). *Information environmentalism: A governance framework for intellectual property rights*. Cheltenham, UK: Edward Elgar.

[3] Benkler, Y. (2006). *The wealth of networks*. New Haven: Yale University Press, p. 315.

[4] Macintosh, W., McGreal, R., & Taylor, J. (2011). Open Education Resources (OER) for assessment and credit for student projects: Towards a logic model and plan for action. Retrieved from http://hdl.handle.net/2149/3039

[5] Baumgartner, P. (2014). Improving reusability of OER educational patterns for content sharing. *Information and Communication Technology, Volume 8407 of Lecture Notes in Computer Science*, 277-285.

[6] Related conceptualisations include Macintosh et al (2011) and Boston Consulting Group. (2013). The Open Education Resources ecosystem: An evaluation of the OER movement's current state and its progress toward mainstream adoption. Retrieved from http://www.hewlett.org/sites/default/files/The%20Open%20Educational%20Resources%20Ecosystem_1.pdf

dynamic cycle of create—use—remix.[7] If the OER commons lives up to its promise, it is a crucial touchstone for social learning, and the lens of systems ecology offers insight on how it can be sustained.

[7] Brown, J.S. and Adler, R.P. (2008). Minds on fire: Open education, the long tail, and learning 2.0. *EDUCAUSE Review January/February 2008*, 16-32. Retrieved from https://net.educause.edu/ir/library/pdf/ERM0811.pdf