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## Openness and education: a beginner's guide

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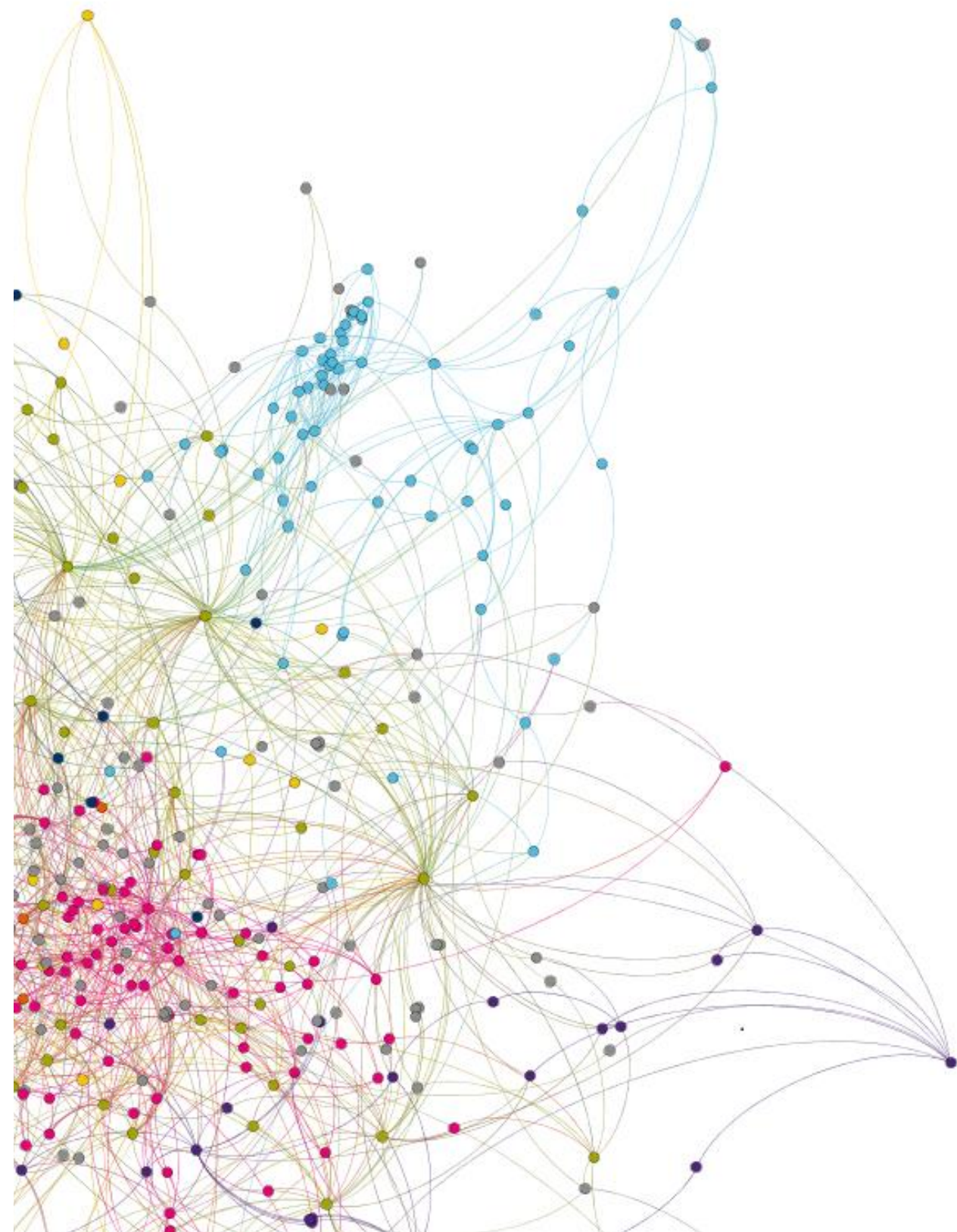
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# Openness and Education: A beginner's guide



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# Introduction

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## About this document

While recent high-profile developments such as Massive Open Online Courses (MOOCs) have placed renewed emphasis on the idea of openness in education, different notions of open in relation to education can be found dating back to the 1960s. This document builds on recent research undertaken to trace this history, acknowledging that there is no single root of 'open' in this context, but to map the different ways of thinking about open education that have come to bear on the field we see today <sup>1</sup>.

Mapping of themes across time aims to provide those new to the field with a useful overview of the history and introduction to the concept of openness, and ways to explore the literature further. Each section of this document will summarise the nature of one of the themes, and its relationship to the broader network. Additionally, the document provides an annotated bibliography, through summaries of five of the most influential publications across a range of perspectives in each theme.

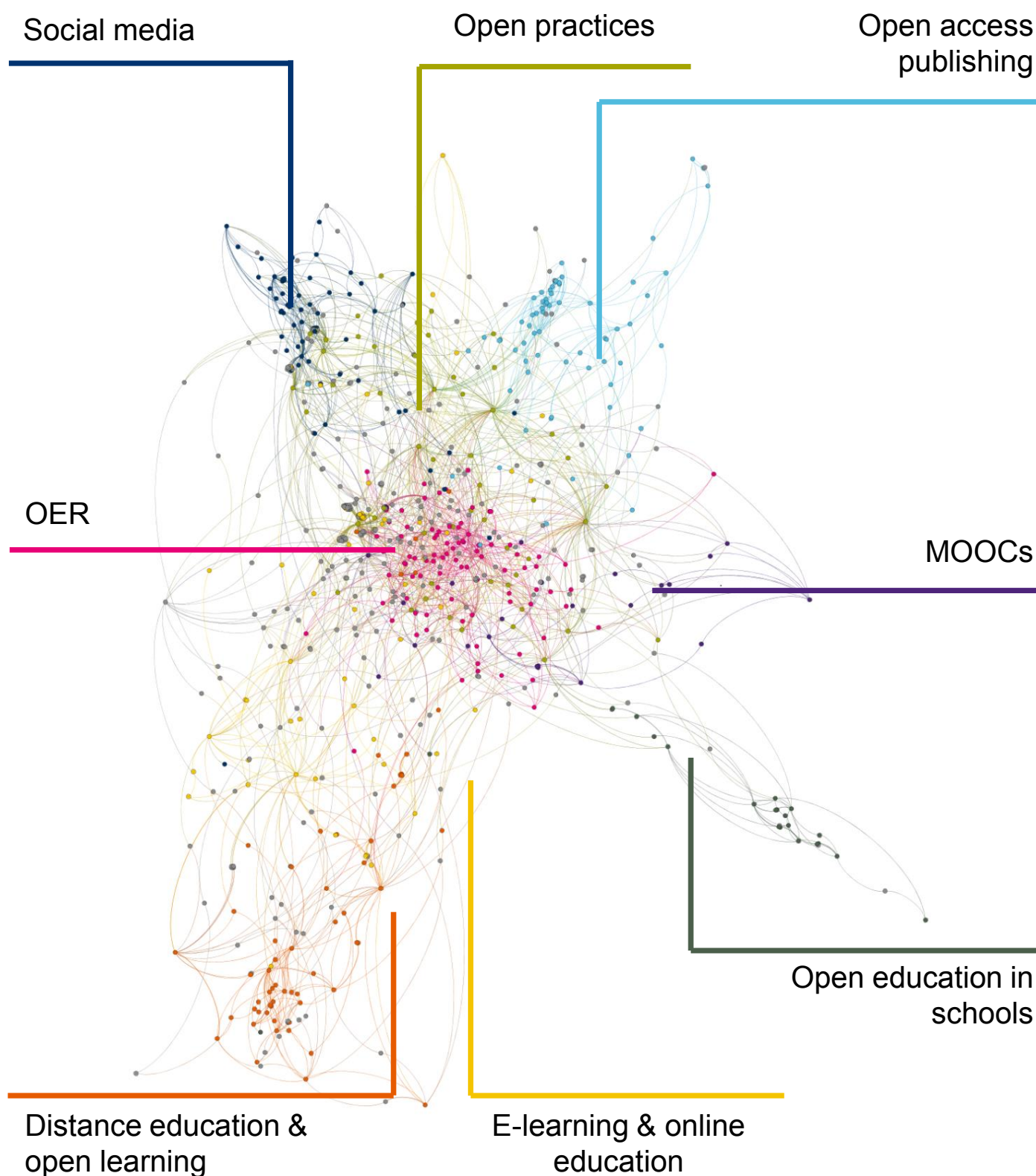
## The research behind the themes

The research used a citation network-based approach, starting with a collection of papers which define or explore the history of openness in education. The reference lists were then used to build a network and further items were added which were cited multiple times. A full list of the publications for which reference lists were included can be found in the Bibliography.

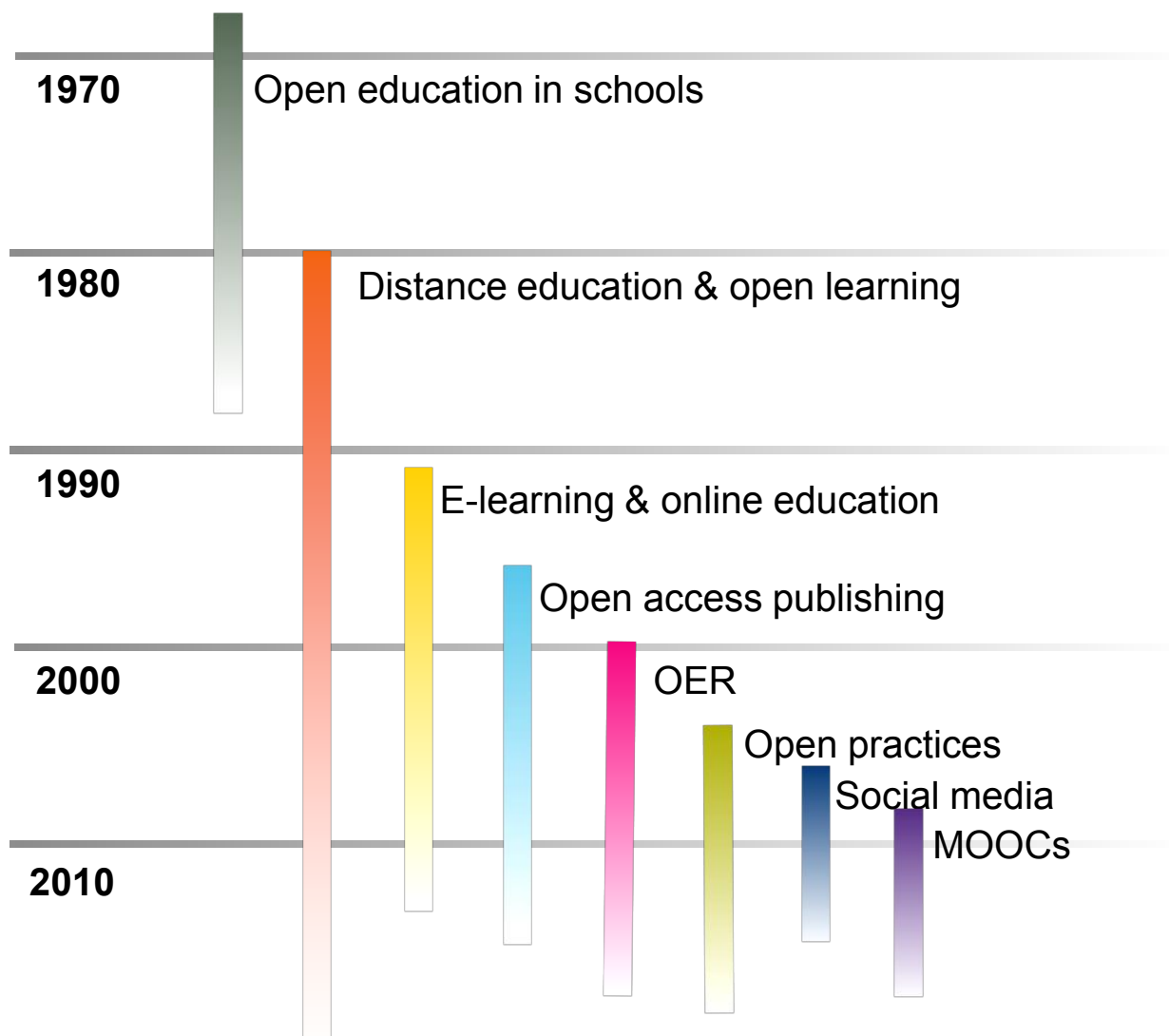
The emerging network revealed clusters of related papers (figure 1), which represent different ways of thinking about openness, and their relative positions to other concepts of openness. The themes identified by the clusters form the structure of this document, and also have a temporal character (as illustrated by the simplified timeline in figure 2).

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<sup>1</sup> Weller, M., Jordan, K., DeVries, I. & Rolfe, V. (2017) Reclaiming our history: Citation network analysis of historical open and distance education research. Presentation at the ICDE World Conference on Online Learning, 16-19 October, Toronto, Canada.



*Figure 1:* Citation network of the papers included in the sample in relation to openness and education, and annotated to show the prevalent themes. The layout shows clusters of nodes according to an algorithm which determines the best fit based on shared links. Nodes are colour coded according to themes identified by the author.



*Figure 2:* Simplified timeline representation of the time periods covered by the themes according to the literature included in the citation network. Each will be discussed in further detail in coming sections, and an interactive version of the full timeline can be found online to accompany this document.



## A starting point

Using a citation network approach is an interesting way of identifying clusters and themes but is limited by the publications which have been included in the sample, unavailability of certain texts online, and biases in citation practices. Recent publications will also be under-represented. As such, this document is not intended to be an exhaustive review of the field, but will provide scholars new to the field with an overview and introductory knowledge of the evolution of openness in education.

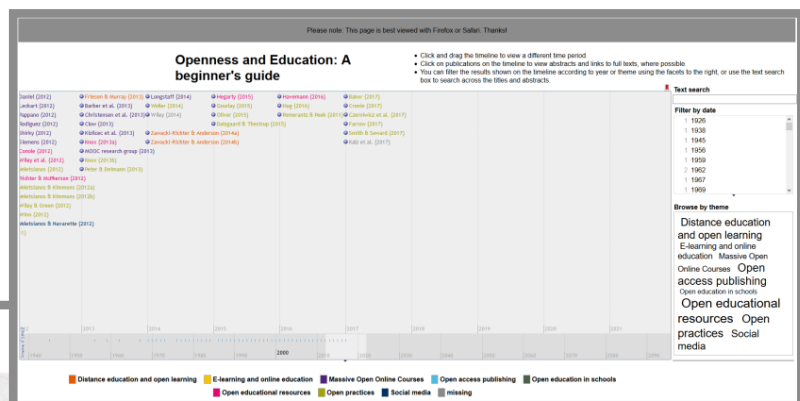
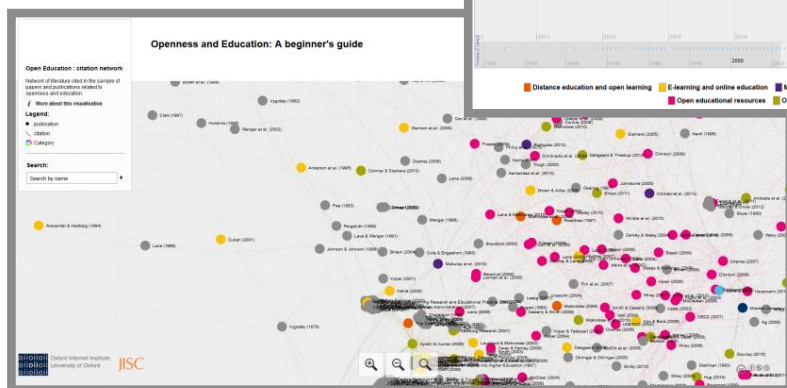
Open education represents an area of study that many people come to from elsewhere. This is part of its rich appeal, the interdisciplinary nature of the discussions and perspectives that arise from considering aspects of openness in education. However, for the newcomer to the field it can be disconcerting to know where to start, as there is no clearly defined disciplinary body of work. It can also lead to a certain amnesia or reinventing the wheel in the field as previous work is forgotten. The intention of this guide is not to suggest a canon of open education texts, but rather to highlight some of the different influences and offer key starting points for further exploration.

## Explore further

The publications which formed the sample are shown in full in the bibliography. To explore further, two interactive tools accompany this document: a timeline, and a network, both of which can be searched and include highly cited nodes which were not possible to include the references for. The timeline includes to ability to search across abstracts, and outward links to full texts where possible.

Timeline view:

<http://tinyurl.com/gogn-timeline>

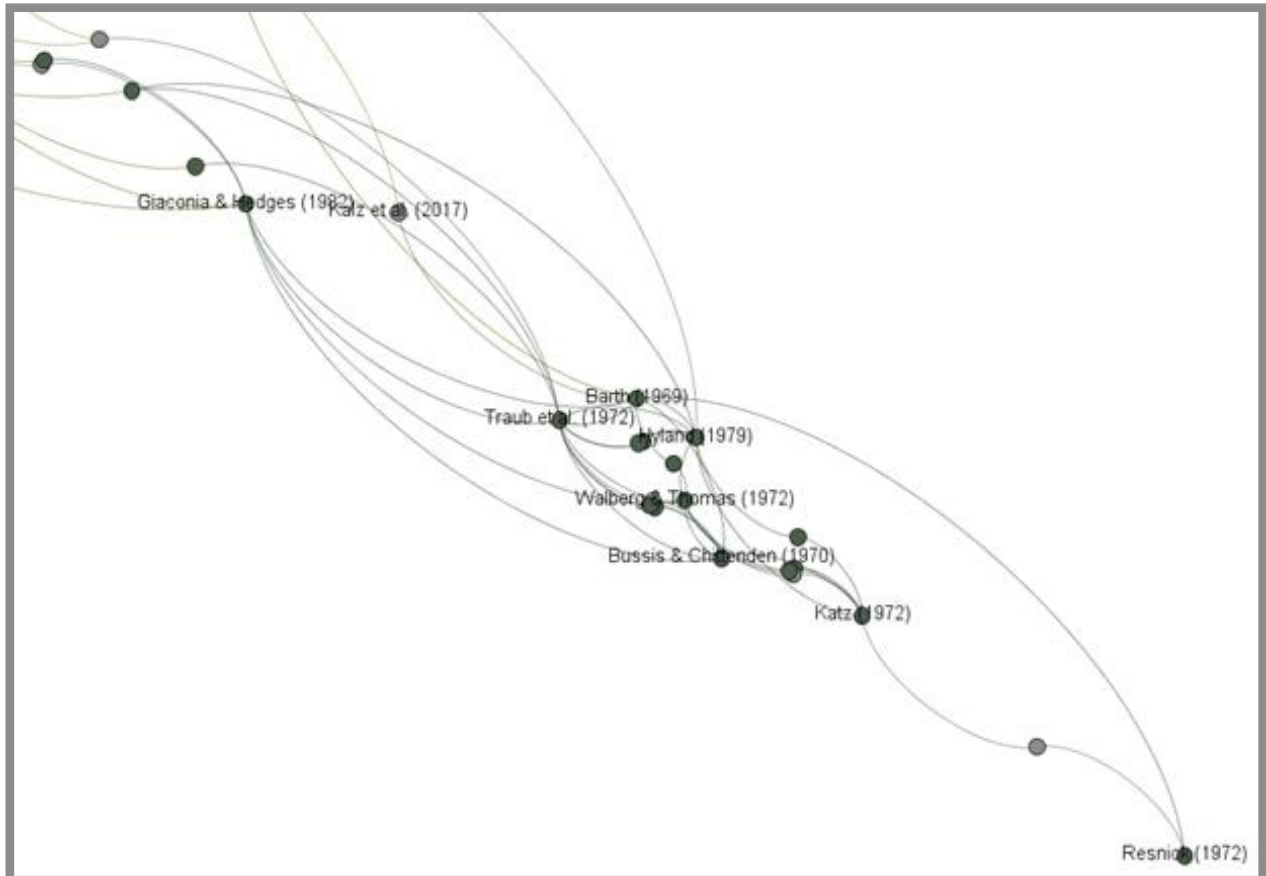


Network view:

<http://tinyurl.com/gogn-network>



# Open education in schools



The Open Education in schools (or Open Classrooms) movement is the earliest cluster present in the network, receiving greatest focus in the early 1970s. The term originated in the UK in the wake of the Plowden report (1967), a comprehensive review of primary school provision at the time. The concept subsequently proved popular in America. In this context, 'open' can relate both to the physical layout of classroom spaces, and approaches to designing educational tasks.

In terms of its position within the network graph, Open education in schools is a discrete and well-defined theme. It is notable that it does not have any direct links to the second oldest theme (Distance education and online learning), but has been drawn into the network through more recent reflections on the history, nature and plural meanings of openness in education.

Barth, R.S. (1969) Open education - Assumptions about learning. Educational Philosophy & Theory, 1(2), 29-39.

In this highly cited paper, Ronald Barth calls for a move away from anecdotal evidence and towards a more formalised definition of Open Education, setting the tone for research in this area over the coming years. He sets out to map the emergent research field by surfacing nine assumptions implicit within open education (frequently focused on the innate ability and disposition of the child), and argues that none are generally supported by a weight of evidence.

Illich, I. (1971) Deschooling society. New York: Harper & Row.

While not closely aligned with its contemporaries in the Open Education in Schools theme, Illich's seminal work Deschooling Society has subsequently been highly influential in relation to the other themes. The book both presents a critique of institutionalised educational provision, calling for a move toward self-directed learning and the importance of social links and interactions, to be achieved through fostering learning webs.

Walberg, H.J. & Thomas, S.C. (1972) Open education: an operational definition and validation in Great Britain and the U.S.A. American Educational Research Journal, 9(2), 197-208.

Walberg and Thomas update Barth's earlier call for systematic approaches to Open Education. They present the results of a survey, completed by educators in the UK and USA. The survey was designed in order to characterise differences between open and traditional classrooms. Out of eight criteria used, open and traditional classrooms differed with respect to five: provisioning, humaneness, diagnosis, instruction and evaluation.

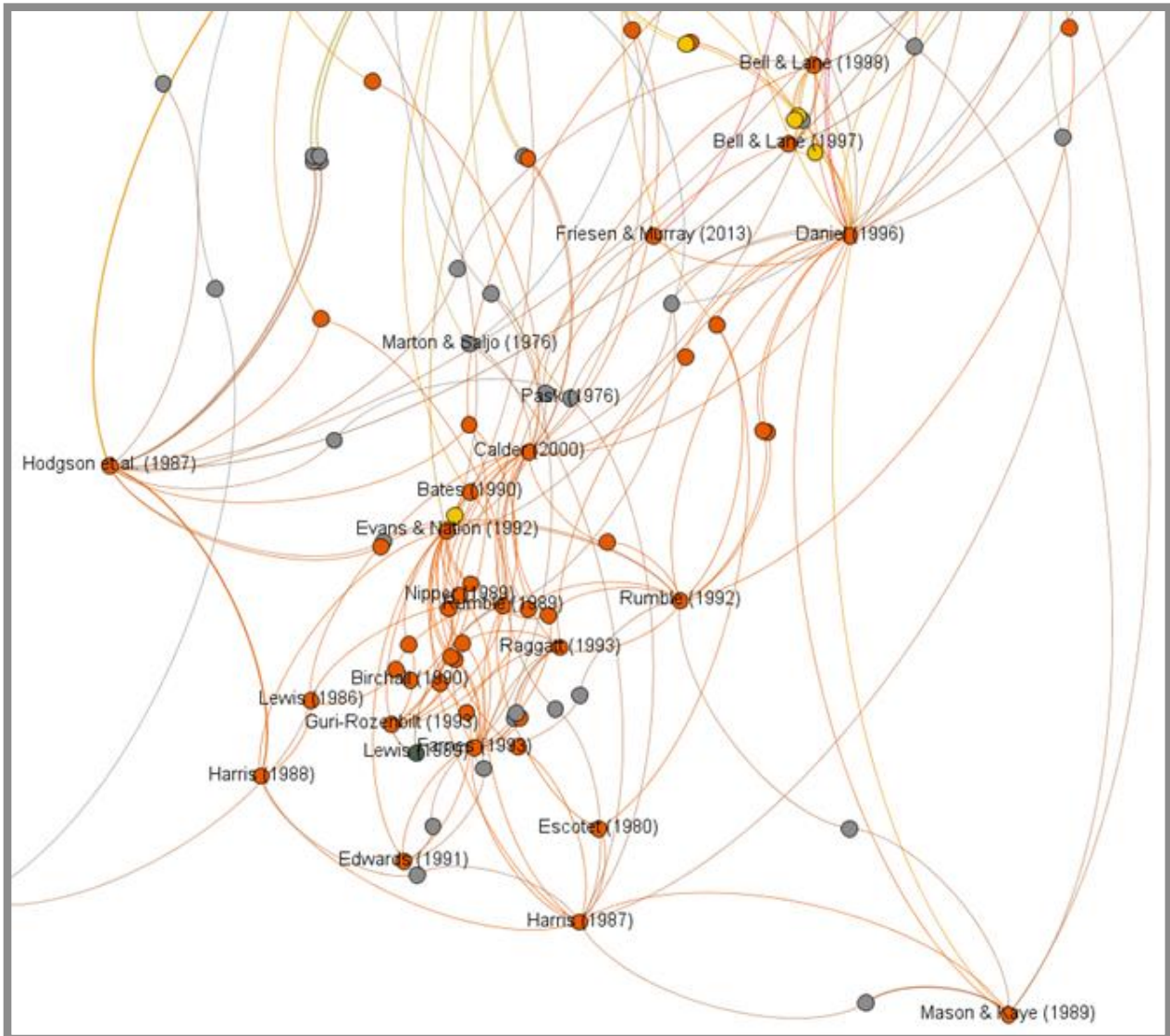
Traub, R.E., Weiss, J., Fisher, C.W. & Musella, D. (1972) Closure on openness: Describing and quantifying open education. Interchange, 3(2-3), 69-84.

Traub et al. also address the problem of evaluating and quantifying effective open education. In this paper, they describe the development and validation of a survey (Dimensions of schooling, or DISC), including criteria such as setting objectives; materials and activities; physical environment; individualisation of learning; role of the teacher; and student control, amongst others.

Resnick, L. (1972) Open education: Some tasks for technology. Educational Technology, 12(1), 70-76.

Resnick opens this paper from a position that educational technology is often perceived as being at odds with the humanistic values of Open Education. She argues that there are six key ways in which educational technology has the potential to support Open Education, including: choosing educational objectives, organization and sequencing materials, displaying alternatives, providing learner control, enhancing motivation, and evaluating competence.

# Distance education and open learning



The theme of distance education emerges in the network from 1980 onwards, with a focus on the growing phenomenon of open and distance universities. Two notable shifts occur which link distance education to other subsequent themes in the development of openness. From the mid 1980s, the term 'open learning' becomes more prominent, signalling a shift towards learner-centred pedagogy and removing barriers. Towards the end of the decade, technological advances such as computer-mediated communication and the nascent World Wide Web become increasingly important. Both lay some of the groundwork for the subsequent theme of 'E-learning and online education'.

Holmberg, B. (1981) Status and trends of distance education. London: Kogan page.

This book represents one of the earliest and most widely cited foundational texts about the concept of distance education, covering aspects of distance education ranging from its underpinning philosophy and theory, course design, communication, administration, evaluation, economics, and relationship with formal education (including a number of contemporary case studies).

Lewis, R. (1986) What is open learning? Open Learning: The Journal of Open, Distance and e-Learning, 1(2), 5-10.

This article coincided with the journal 'Teaching at a distance' changing its name to 'Open learning', reflecting the shift towards putting learner choice at the centre of course design. Lewis elaborates on the distinction between distance and open learning in terms of removing key barriers, including physical, educational, individual and financial. The paper also positions open and closed systems as a continuum.

Rumble, G. (1989) Open learning, distance learning, and the misuse of terms. Open Learning: The Journal of Open, Distance and e-Learning, 4(2), 28-36.

Rumble explores the history of distance and open education in order to present a critique of the term 'open learning', and argues that the dichotomy of 'open' and 'closed' (distance) educational systems does not hold up in practice. In doing so, he provides a much more robust definition of openness in this context.

Nipper, S. (1989) Third generation distance learning and computer conferencing. In: R. Mason & A. Kaye (Eds.) Mindweave: Communication, computers and education. Oxford: Pergamon, pp. 63-73.

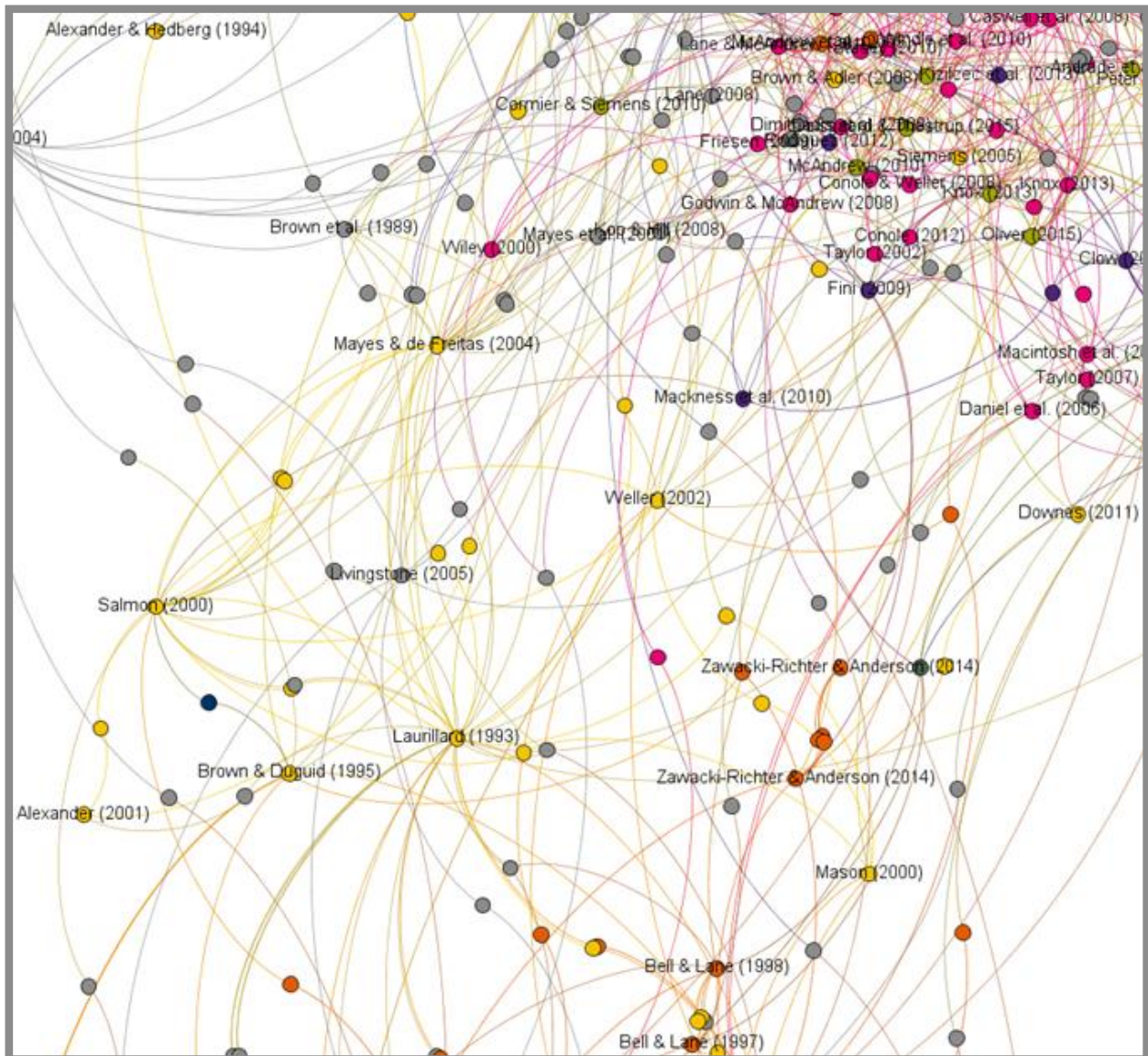
Nipper introduces the first (correspondence teaching) and second (multi-media distance teaching) generations of distance learning, before posing and discussing computer-mediated communication (using examples of pre-World Wide Web technologies) as defining the third generation of distance learning.

Bates, A.W. (1990) Third Generation Distance Education: The challenge of new technology. Available at ERIC (ED332682).

In response to growing hype about the potential for 'tele-education' – education through new types of telecommunications – Bates presents an argument for why tele-education may not be a panacea to solve all problems, or be superior to existing modes of, distance education. He also discusses the challenges and opportunities presented by such technologies.



# E-learning and online education



E-learning and online education rose to prominence in the 1990s and early 2000s, bridging the gap between distance education and OER. This period saw a mainstreaming of many of the issues relating to open education, as e-learning became an area of interest for traditional universities and not just open education providers. Over this period, e-learning (and related terms, such as technology enhanced learning) become increasingly synonymous with the Internet and web-based technologies, while largely not losing sight of the importance of pedagogy and adapting teaching practices rather than relying on new technology alone.

Laurillard, D. (1993) *Rethinking university teaching: A framework for the effective use of educational technology*. Abingdon: RoutledgeFalmer.

Laurillard presents a practical and wide-ranging analysis of the variety of educational technologies available, and crucially makes the link to student learning, clearly illustrating what can be achieved and how to effectively use different technologies for teaching. It introduces the influential Conversational Framework model as a way of analysing the potential for a technology to be effectively introduced into the learning process.

Mason, R. (2000) *From distance education to online education. The Internet and Higher Education*, 3(1-2), 63-74.

This personal reflection by Robin Mason charts the progression from distance education to online learning over the course of 15 years through her career at the Open University. It covers issues such as course design, tutoring, and assessment, highlighting key developments and constraints in the process.

Salmon, G. (2000) *E-Moderating: The key to teaching and learning online*. London: Taylor & Francis.

In E-Moderating, Salmon focuses on enhancing online education not through particular technologies, but the practices of those facilitating learning online. A five stage model is proposed to build increasingly beneficial interactions online, from access and motivation, to online socialisation, information exchange, knowledge construction, and finally development.

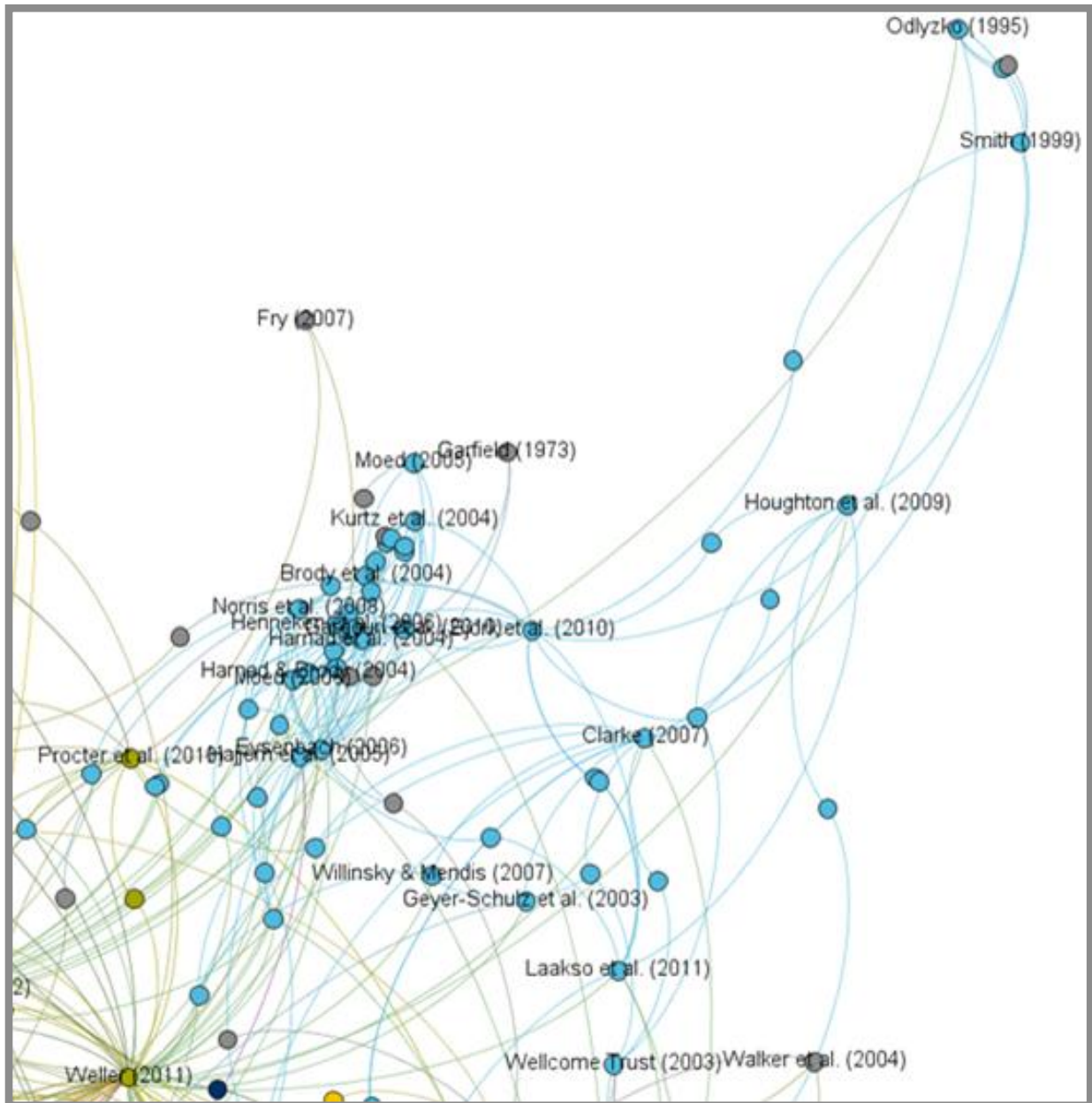
Mayes, T., & de Freitas, S. (2004) *Stage 2: Review of e-learning theories, frameworks and models*. London: Joint Information Systems Committee.

Mayes and de Freitas present a comprehensive review of the pedagogical models and frameworks used in relation to e-learning projects and initiatives, and their implications for design of interventions and use in educational practice. Their analysis begins from three psychological perspectives underpinning theory – empiricist, cognitive and situative perspectives – mapping learning theories and their implications for learning design.

Siemens, G. (2005) *Connectivism: A learning theory for the digital age*. *International Journal of Instructional Technology and Distance Learning*.

In this seminal paper, Siemens argues for the need for a new theory of learning, highlighting the shortcomings of behaviourism, cognitivism and constructivism particularly when viewed in relation to living and learning in the digital age. Connectivism is proposed as a new model foregrounding the importance of networking through online technologies, pre-empting the coming explosion in social media and social networking tools.

# Open access publishing



Open access publishing entered the network as a concept towards the end of the 1990s, with a focus on metrics and how OA compares to traditional scholarly publishing during the 2000s. In contrast to the other themes so far, this cluster is not primarily concerned with education in terms of teaching, but rather focused on the research activities and outputs of higher education. As such, it is not widely linked to the other themes in the network, but has been an important contributor towards open practices in terms of digital scholarship.



Lawrence, S. (2001) Free online availability substantially increases a paper's impact. Nature, 411(521).

This short but highly cited correspondence article in Nature reports the findings from one of the earliest studies of the impact of open access upon citations. The analysis of 119,924 Computer Science conference articles indicated that those published as OA enjoyed 157% more citations on average compared to those which were not.

Budapest Open Access Initiative (BOAI) (2002) Read the Budapest Open Access Initiative. BOAI website.

The BOAI outlines principles for open access to research publications. It was the result of a conference in Budapest on the topic, and marked a significant development in OA. The BOAI proposes two strategies to achieving open access to research: self archiving, and open-access journals.

Harnad, S., Brody, T., Vallieres, F., Carr, L., Hitchcock, S., Gingras, Y., Oppenheim, C., Stamerjohanns, H. & Hilf, E. (2004) The access/impact problem and the green and gold roads to Open Access. Serials Review, 30, (4).

This article identifies two main barriers to OA: the prohibitive expense of journals, and that maximum impact cannot be achieved without access. The extent of the two problems is estimated, and the complementary strengths of Gold OA (publishing in OA journals) and Green OA (self-archiving) are proposed as a solution.

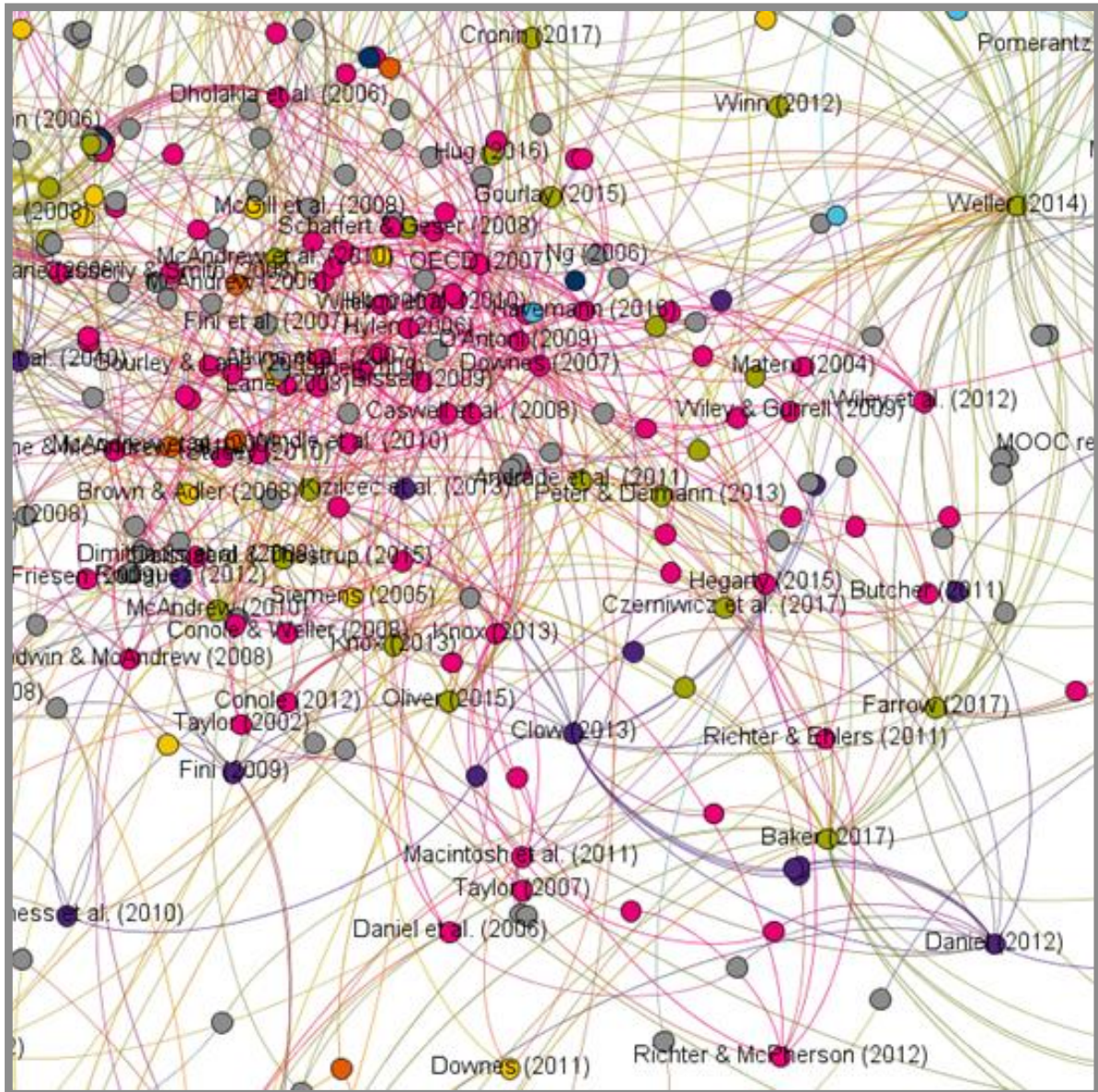
Hajjem, C., Harnad, S. & Gingras, Y. (2005) Ten-year cross-disciplinary comparison of the growth of Open Access and how it increases research citation impact. IEEE Data Engineering Bulletin, 28(4), 39-47.

Builds on the earlier work by Lawrence to provide a comprehensive analysis of the impact of OA on citations. Across an expanded sample of 10 years and a range of 12 disciplines, OA articles continue to have consistent greater citation rates.

Laakso, M., Welling, P., Bukvova, H. & Nyman, L. (2011) The development of open access journal publishing from 1993 to 2009. PLoS ONE. doi: 10.1371/journal.pone.0020961

Presents the results of a systematic analysis of the growth of OA journals, using the journals included in the Directory of Open Access Journals (DOAJ) between 1993 to 2009 as a sample. The results provide a robust historical benchmark of the growth of OA journals and articles during this period, summarising the findings in relation to other studies, and characterising distinct phases in the history of OA development.

# Open educational resources



The Open Educational Resources (OER) theme is a tight-knit community at the heart of the network. The OER theme emerges around the year 2000, initially focusing upon learning objects, open source education, and OpenCourseWare. The theme is central to the citation network, both drawing upon existing work in e-learning and distance education, and influencing subsequent themes of MOOCs and open practices. While the discourse around OER emphasise opening up quality educational resources on a global scale, later in the theme a recognition that access is not enough and need to be combined with open educational practices emerges.

UNESCO (2002) Forum on the impact of Open Courseware for higher education in developing countries final report. UNESCO.

This document reports on a forum convened by UNESCO with 17 participants involved in developing higher education in a range of institutions from across the globe. It presents the findings of questions posed to working groups within the forum around the barriers to worldwide adoption of Open CourseWare initiatives.

Hylen, J. (2006). Open educational resources: Opportunities and challenges. OECD.

This report presents some of the preliminary findings of the OECD OER project, which sought to map the extent of OER initiatives. Four key questions guided the study, in relation to sustainability and models, intellectual property issues, incentives and barriers to being involved in OER, and improving access and utility of initiatives. It also provides a good discussion of the term and its history.

Wiley, D. (2007) On the sustainability of Open Educational Resource initiatives in Higher Education. OECD.

Sustainability is a key issue for OER, not only in financial terms but rather here the focus is both in terms of sustaining the production and sharing of resources, and their use. Wiley draws upon examples (including OpenCourseWare and parallels with Open Source Software) and provides a succinct review of the associated issues.

Atkins, D.E., Brown, J.S. & Hammond, A.L. (2007) A review of the Open Educational Resources (OER) movement: Achievements, challenges, and new opportunities. The William and Flora Hewlett Foundation.

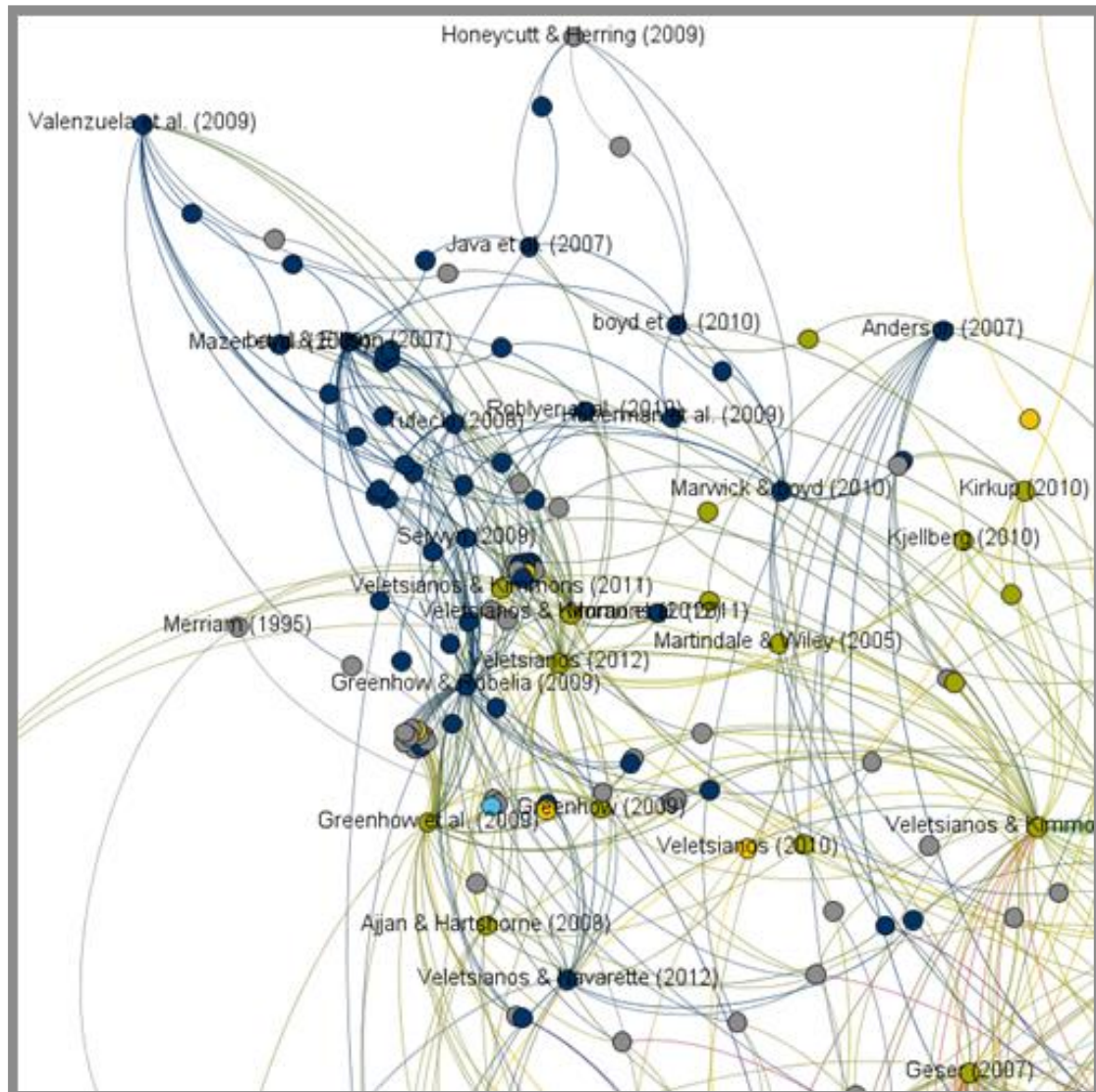
This report is the seminal review of the OER movement. It is structured around three main sections. First, major OER initiatives and remaining challenges are reviewed. Second, potential links to emerging complementary IT infrastructures are made; and third, the emphasis shifts to their potential in participatory and networked learning.

D'Antoni, S. (2008) Open educational resources: The way forward. UNESCO.

This document draws upon the collective experiences and discussions of a large online community across 192 UNESCO member states with interests in OER. As such, it provides a comprehensive, international overview of the field, including priorities for further development and potential ways to achieve them. The highest priority is identified as raising awareness, followed by communities and networking, developing capacity, quality assurance, sustainability, and copyright and licensing.



# Social media



Social media emerged as a theme in the network, from the mid 2000s. While the majority of papers included in the network are written from a more general Internet Studies or Communication perspective rather than focused on education or academia, the position of the theme suggests that this body of work has been influential in thinking about open practices and scholarly activities online. Use of online social networking tools is particularly prominent, but the theme also includes ideas related to 'Web 2.0' and social media more broadly, such as blogging. In very recent years, this theme has been less well represented as the focus has shifted towards use of tools as part of Open practices.

O'Reilly, T. (2005) *What is Web 2.0? Design patterns and business models for the next generation of software*. O'Reilly blog.

Although the term 'Web 2.0' may have been coined earlier, this blog post by Tim O'Reilly popularised the term. He uses a series of examples to illustrate the move from the Web as a static resource to a focus upon user-generated content and active participation.

Alexander, B. (2006) *Web 2.0: A new wave of innovation for teaching and learning?* EDUCAUSE Review.

Bryan Alexander builds upon the rise of the term 'Web 2.0' from an educational perspective. Drawing upon a wide range of online tools, he presents a wide ranging and imaginative discussion of their potential implications for education, with access to information and broader social learning as underpinning themes.

boyd, d. & Ellison, N. (2007) *Social network sites: definition, history, and scholarship*. Journal of Computer-Mediated Communication, 13(1), 210-230.

Provides a history of social networking sites up to 2007, and three key defining characteristics, which include (i) profile creation, (ii) making connections to others, and (iii) to be able to view and navigate the resulting network of connections.

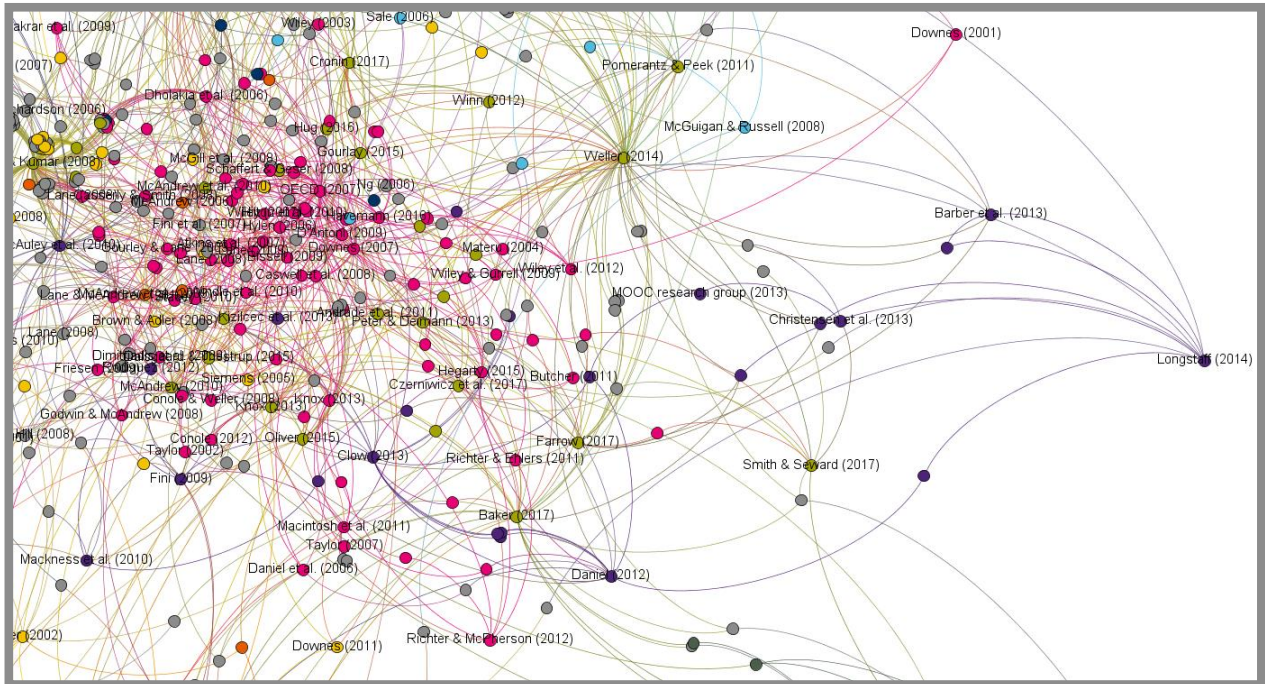
Greenhow, C. (2009) *Social scholarship: applying social networking technologies to research practices*. Knowledge Quest, 37(4), 42-47.

Greenhow presents an argument for increased use of Web 2.0 tools, in particular social bookmarking tools, in schools and further education settings. She emphasises the affordances for learning in online social networks and coins the term 'social scholarship'; while not focused on higher education, this links to future developments in terms of networked participatory scholarship and open practices.

Moran, M., Seaman, J. & Tinti-Kane, H. (2011) *Teaching, learning, and sharing: How today's higher education faculty use social media for work and for play*. Pearson.

Presents the results of a large-scale, relatively early survey of the extent of use of major social media tools by academics, providing a useful baseline for future studies.

# Massive open online courses



Massive open online courses (MOOCs) represent one of the most recent themes within the network. Although 'open' is ostensibly foregrounded, being part of the acronym itself, the relationship with the discourse surrounding openness in education is less clear. The group of papers on the theme of MOOCs have some shared connections to the OER and e-learning clusters, but are distinct.

The MOOC theme is not tightly cohesive within itself, which likely reflects the differing course models – connectivist cMOOCs and more transmissive xMOOCs – which have shaped the field. This is also a relatively recent addition to the landscape of openness and education and many courses have already imposed temporal or financial restrictions upon access, so it remains to be seen how the nature of openness in this context will continue to evolve.

McAuley, A., Stewart, B., Siemens, G. & Cormier, D. (2010) *The MOOC model for digital practice*. University of Prince Edward Island.

This seminal report by authors at the heart of connectivist MOOC courses formalises the definition and philosophical underpinnings of the early MOOCs. In contrast to the xMOOCs that would follow in coming years, there is greater emphasis on social networking, digital practice and the participatory nature of MOOCs.

Mackness, J., Sui Fai Mak, J. & Williams, R. (2010) *The ideals and reality of participating in a MOOC*. *Proceedings of the 7th International Conference on Networked Learning 2010*, 266-275.

Mackness et al. also draw upon their own experiences of a connectivist MOOC (CCK08), but from the perspectives of course participants. Principles of autonomy, diversity, openness and connectivity were reported, but also accompanied in practice by constraints such as lack of structure and support associated with a more traditional format.

Daniel, J. (2012) *Making sense of MOOCs: Musings in a maze of myth, paradox and possibility*. *Journal of Interactive Media in Education*, 2012(3), 18.

Written as the hype surrounding xMOOCs was at its peak, Sir John Daniel discusses their position in relation to the earlier themes of e-learning and distance education, and provides an argument for the ways in which MOOCs potentially can and cannot contribute to a transformation of higher education.

Bates, T. (2012) *What's right and what's wrong about Coursera-style MOOCs?* [www.tonybates.ca](http://www.tonybates.ca).

Tony Bates presents a commentary in response to a TED talk presented by Daphne Koller, one of the co-founders of Coursera, about the platforms' assumptions about openness and pedagogy. He identifies and critiques four myths implicit in their model: that MOOCs increase access to HE in developing countries; that MOOC pedagogy is new; that big data will improve teaching; and that computers personalise learning.

Barber, M., K. Donnelly, S. Rizvi, & L. Summers (2013) *An avalanche is coming: Higher education and the revolution ahead*. Institute for Public Policy Research.

In 'An avalanche is coming', Barber et al. present many of the social and economic arguments for the global higher education sector being 'broken' and ripe for transformation or 'disruption'.



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Geser, G. (2007) Open educational practices and resources: OLCOS roadmap. Open e-Learning Content Observatory Services.

The OLCOS roadmap provides a review of the current state of issues in relation to OER, however in contrast to similar reports under the OER theme, the OLCOS perspective foregrounds the need to foster open educational practices alongside content. Recommendations are proposed covering a wide range of positions within education.

Ehlers, U-D. (2011) Extending the territory: From open educational resources to open educational practices. Journal of Open, Flexible and Distance Learning, 15(2), 1-10.

Ehlers summarises the findings of the OPAL project report in this paper. It expands upon and emphasise the shift in the field from OER to OEP, provides a definition of OEP, and a framework for supporting and implementing OEP in organisational settings.

Weller, M. (2011) The Digital Scholar: How technology is transforming scholarly practice. London: Bloomsbury.

Drawing parallels with how the operations of other industries have been dramatically affected by new digital technologies, Weller examines how technologies may facilitate a similar shift in all aspects of academic work and scholarship.

Veletsianos, G. & Kimmons, R. (2012) Networked participatory scholarship: Emergent techno-cultural pressures toward open and digital scholarship in online networks. Computers & Education, 58(2), 766-774.

Veletsianos and Kimmons define Networked Participatory Scholarship as “scholars’ participation in online social networks to share, reflect upon, critique, improve, validate, and otherwise develop their scholarship”. In contrast to digital scholarship, they argue, the emphasis in NPS is on transforming scholarly practice through social networks (c.f. Greenhow) rather than amplifying existing practices.

Cronin, C. (2017) Openness and praxis: Exploring the use of open educational practices in higher education. International Review of Research in Open and Distributed Learning, 18(5).

This study explored the ways in which academics use OEP, why they do so (or not), and the shared practices and values of those who do. Hallmarks of OEP are found to include a well-developed open digital identity, personal and professional use of social media, using closed (VLE) and open tools, use and reuse of OER, valuing both privacy and openness; and accepting blurring of personal-professional and staff-student boundaries.

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