Collaborative Curiosity: Demonstrating relationships between open education, networked learning and connected learning

Laura Park Gogia, MD

Academic Learning Transformation Lab,

Virginia Commonwealth University

gogialp@vcu.edu

Abstract

Networked learning, open education, and connected learning are emerging pedagogical fields that explore the opportunities, challenges, and implications of teaching and learning in digital environments. Propelled forward from and by a digital networked participatory culture, the three pedagogical approaches share core assumptions about the importance of educational equality and access, self-determined and participatory learning, and authentic and relevant learning experiences. While open education, networked learning, and connected learning share an ethical stance, they emphasize different aspects of the digital pedagogical experience and manifest themselves in different ways. While the open education field tends to focus on the development and scalability of educational resources and practices, networked learning tends to emphasize the pedagogical experience of learning communities and interpersonal connections, and connected learning promotes instructional designs for holistic, participatory learning. Moreover, the scholarly outlets that support research and development across open education, networked learning, and connected learning exist in distinct educational sectors and geographic locations; in recent years, open education has evolved on a global scale, but networked learning is most commonly associated with universities in the United Kingdom and Europe, and connected learning is experiencing growth in the informal, K-12 learning spaces of the United States. After providing a brief historical and epistemological introduction to open education, networked learning, and connected learning, this paper aims to explore the relationships between them by analysing their intertwined presence within a single university course. The course, *Collaborative Curiosity: Designing Community-Based Research* (CMST 691), was a fully online, open, graduate-level course offered by Virginia Commonwealth University (VCU) in the summer of 2015. As part of a university-wide initiative to promote student engagement and deeper learning through digital engagement and connected learning, the course was intentionally designed to align with open education, networked learning, and connected learning practices. After teasing out and discussing the elements of "open," "networked," and "connected" as separate entities, this paper will briefly argue for treating them as distinct but related and synergistic educational approaches. Attempts should be made to build a common language and maintain pathways for communication across open education, networked learning, and connected learning scholars and scholarship, so that they will not become isolated by their existence in separate geographies.

Keywords

Connected Learning, Networked Learning, Open Education, Open Educational Resources, Higher Education, Digital Pedagogies, Online Learning, Curriculum and Instructional Design

Introduction

The world is in an era of rapid change, brought on in part by the emergence of Internet-based technologies (Rainie & Wellman, 2014). As people and digital technologies co-evolve, a digital participatory culture is emerging, one which Jenkins et al. (2009) describe as having:

> ...relatively low barriers to artistic expression and civic engagement, strong support for creating and sharing one's creations, and some type of informal mentorship whereby what is known by the most experienced is passed along to novices. A participatory culture is also one in which members believe their contributions matter and feel some degree of social connection with one another (at the least they care what other people think about what they have created). (p. 3)

A growing number of people consume digital information, but they also actively participate in its production through affiliation formation, creative expression, collaborative problem solving, and contribution to information circulation (Jenkins et al., 2009). The increasing presence of digital technologies and active, networked knowledge creation stimulate new or, in some cases, have revived older approaches to teaching and learning (Kasworm, 2011).

Open education, networked learning, and connected learning are three pedagogical constructs inspired or advanced by the networked, digital, participatory culture. Perhaps because they are still emerging, the constructs often appear in the educational literature with imprecise definitions or multiple meanings (Veletsianos & Kimmons, 2012). Despite publications describing networked learning as a pedagogical approach to learning through personal connection, the term is still used by others to mean only the technical aspects of online learning (Bell & Zaitseva, 2005; Goodyear et al., 2004; Hodgson, McConnell, & Dirckinck-Holmfeld, 2012). Similarly, references to connected learning can indicate interdisciplinary learning (e.g. Boxer, 1998; Creighton, 2006), online learning (e.g. Bowen, 2011; Lennox, Davis, & Heirdsfield, 2006), and collaborative or situated learning (Long & Shobe, 2010; McElvaney & Berge, 2009) with or without digital technologies. Finally, "open" has been used to address issues of access, cost, ownership, and philosophical orientations in contexts of educational content, instruction, and learning spaces (Cronin, 2015; Veletsianos & Kimmons, 2012).

Despite the varied and often imprecise uses of open, networked, and connected in the educational literature, these constructs can be used to indicate specific meanings and manifestations supported by distinct pedagogical or conceptual frameworks, specific scholarly outlets, and centres of research. Open education, networked learning, and connected learning share core assumptions about the importance of educational equality and access, self-determined and participatory learning, and authentic or relevant learning experiences (Hodgson et al., 2012; Ito et al., 2013; Veletsianos & Kimmons, 2012). However, they offer different perspectives on and emphasize different aspects of learning because they emerged from and are supported by different educational sectors, geographic regions, and research traditions. While open education tends to privilege accessibility, equitability, and sustainability of educational resources, networked learning focuses on presence and interpersonal interaction, and connected learning emphasizes instructional design and the holistic nature of learning.

This paper explores open education, networked learning, and connected learning as complementary and overlapping (yet still distinguishable) facets of digital pedagogy. It will briefly describe their historical origins and conceptual frameworks before providing examples within the context of a single university course design. The purpose of this paper is two-fold; first, it aims to help new digital learning practitioners and researchers to begin to distinguish between "open," "networked," and "connected" while revealing that, ultimately, the constructs can and should be combined to create more effective digital learning experiences. It also strives to stimulate more discussion across scholars who identify with open education, networked learning, and connected learning, thereby preventing the academic silos that occur when ideas emerge from disparate educational sectors and geographic locations.

Three Approaches to Digital Pedagogy

Open Education

The modern conceptualization of open education as "resources, tools, and practices that employ a framework of open sharing to improve educational access and effectiveness worldwide" emerged from the university-based open and distance learning initiatives of the 1970s (Open Education Consortium, 2015, para 2). Many of the individuals involved developing and promoting open universities were trained in the humanities and adult education with related backgrounds in critical pedagogies and social constructivism. Those who would eventually build the contemporary field of open education became interested in the "administrative" issues of

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equitable access: course locations, timing, formats, and costs of educational materials and programming. Furthermore, they saw potential in available and future digital technologies to provide scalable and sustainable access to educational materials (McConnell, Hodgson, & Dirckinck-Holmfeld, 2012). The emphasis on sharing content eventually led to an educational technology field devoted to the development and promotion of open educational resources (OER), formally defined at a UNESCO conference in 2000 as educational materials that are made available in the public domain or under an open license with the capacity for reuse, remixing, and redistribution (Yuan et al., 2008). These digital resources often take on traditional formats, such as online textbooks, videos, and images. Recently, a significant portion of the open education literature has been devoted to the development, description, and critique of massively open online courses (MOOCs; e.g. Rodriguez, C., 2012; Ross, et al., 2014; Yuan & Powell, 2013). These courses are considered an increasingly common manifestation of open education and teaching practices that facilitate public and no-cost access to curated educational content, learning activities, and learning communities.

Networked Learning

Networked learning emerged around the same time as open education from university-based open and distance learning initiatives in Europe and the U.K.; those universities continue to be the primary centres and focus of networked learning research, today (Hodgson et al., 2012). Rather than focussing on equitable educational access at a systems level, networked learning scholars tend to explore the person- and course-level experiences of teachers and learners in digital spaces. Networked learning scholars identify with the concept of "networked" because it emphasizes the importance of interpersonal connection, between learners and their peers, tutors, and other resources (Goodyear et al., 2004). Central to this idea of networked connection is the learning community, in which instructors and learners co-construct a safe environment for risk-taking, sharing, and providing feedback. The goal of networked learning research and practice is to create digital learning communities that promote collaborative and cooperative learning at levels that approach or exceed those found in face-to-face experiences (McConnell et al., 2012). While digital technologies are acknowledged as potential mediators of connection, networked scholars tend to critique their impact and implications on the pedagogical experience more frequently than those writing on open educational resources or connected learning (e.g. Bayne, Knox, & Ross, 2015; Gourlay, 2015).

Connected Learning

In the late 2000s, the John D. and Catherine T. MacArthur Foundation (http://www.macfound.org) funded the development of the Connected Learning Alliance, a network of research, educational, and advocacy organizations working towards using digital technologies to facilitate equity, access, and opportunity for young people (The Connected Learning Alliance, 2015). The educational research efforts of the network were spearheaded by the DML Research Hub, which published a pedagogical framework and agenda for research and instructional design for connected learning in 2013 (Ito et al., 2013). Inspired by Dewey (1916/1989), Montessori (2013), and primary ethnographic research performed in mostly US-based informal learning spaces for adolescents (http://dmlhub.net/publications offers examples), the connected learning pedagogical framework includes six core principles related to learning and design. Core learning principles emphasize the diverse spaces in which youths learn, including their personal passion projects, peer organizations and cultures, and academic environments. The design principles identify experiential, social, and openly networked learning experiences as those most likely to inspire deeper, engaged learning (Ito et al., 2013). In connected learning settings, the key purpose of instructional design becomes helping students connect their learning experiences across formal and informal spaces to generate a more holistic, engaging, and sustainable approach to learning. The connected learning literature tends to view digital technologies as powerful tools for helping students create their own generative, authentic, and powerful learning experiences. Therefore, the focus of research in connected learning becomes identifying ways in which instructors and designers might facilitate connectivity in the presence of digital tools (Garcia et al., 2014).

Analysing *Collaborative Curiosity*

Course Overview

In the summer of 2015, Virginia Commonwealth University (VCU) offered an eight-week, fully-online, open, graduate level course called *Collaborative Curiosity: Designing Community Engaged Research* (CMST 691), intended to introduce participants to the purpose, design, and practice of community engaged research. The course instructors, Dr. Valerie Holton and Ms. Tessa McKenzie, designed *Collaborative Curiosity* in the context

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of a university-wide effort to promote deeper learning and student engagement through connected learning and digital engagement (Virginia Commonwealth University, 2014). The author of this paper assisted in the instructional design of the course, providing additional information on connected learning, open education, and networked learning during the planning stages. She then engaged in *Collaborative Curiosity* as part of her ongoing research in connected learning. Eleven VCU graduate students formally registered and earned credit for the course, but approximately 15 additional open (unenrolled, non-credit earning) participants also engaged in and contributed to the course in recognizable, meaningful, or consistent capacities. Open participants included VCU faculty and staff representing several disciplines and departments; local community organizers and nonprofit professionals; and other interested individuals not affiliated with VCU or the local community. While all participants were encouraged to comment on each other's contributions, the credit-earning graduate students also received formal summative and formative instructor feedback on their assignments.

To facilitate participation from all interested individuals, regardless of academic affiliation or status, course documents were housed on a public course website (http://rampages.us/CMST691Summer2015). Participants were asked register for free Twitter (http://www.twitter.com; a public microblogging platform) and Diigo (http://www.diigo.com; a public social bookmarking platform) accounts and to create personal blog sites, which were then connected to the course webpage via RSS feed. Each week, participants were asked to (1) listen to expert panel discussions, a majority of which were live-streamed so that the audience could watch in real-time and interact with panellists via simultaneous Twitter-based discussion; (2) participate in synchronous, Twitter-based discussions of assigned readings; (3) write community engaged research proposals and publish them sequentially (one proposal section per week, the content of which was complemented by scheduled expert panels and readings) on their blog sites; (4) reflect on differences between community engaged research and other forms of research through "Intellections," posted on personal blog sites; and (5) create digital "makes" around important questions in community engaged research. Participants were also invited to curate web documents relevant to community engaged research or their individual projects in a public group Diigo folder. While completed assignments were posted on individual participant blogs, the RSS feed allowed participant work to be aggregated on the course website to facilitate efficient commenting, review, and assessment. Final grades for credit-earning students were based on participation in Twitter discussion sessions and completion of blog post assignments, the quality of which were assessed through a rubric posted on the course website.

Designing Course Resources for Open Education

In practice, open education requires "sharing open educational resources and ideas, working across open networks, and supporting students in doing the same" (Cronin, 2015, para 6). Designing and participating in *Collaborative Curiosity* required the curation and use of freely available digital tools, publications, and other educational materials. Table 1 demonstrates the breadth of openly sourced digital tools and platforms used, many of which were found and introduced to the learning community by the participants rather than the instructors. The live-streamed expert panel discussions that took place through the course were curated and published for future and public use. Furthermore, instructors actively promoted the value of OER throughout the course design, not only in terms of equality and justice, but also as a means for enhancing the qualities of scholarship and communication. Participants, many of whom were graduate students with no formal experience or knowledge of open digital scholarship, were asked to read and reflect on articles regarding open education and scholarship. They were also asked to complete blogging assignments, which included a proposal for community engaged research, as if they were writing for an audience of community partners or the general public. As such, participants were encouraged to consider the accessibility of their cited works and additional resources - in terms of logistics as well as readability and content. Furthermore, course participants used Diigo, an open digital social bookmarking platform, to curate a publicly available collection of resources on community engaged research. The collection of links is still available and can be added on through other iterations of the course.

Designing Teaching Presence for Networked Learning

Networked learning values the learning community: environments where participants build trust, feel safe to be honest and take risks, and co-create knowledge with peers and mentors. The concept of "presence," especially teaching and social presence, plays a large role in the development, sustainability, and effectiveness of learning communities (Garrison & Anderson, 2003). In openly networked learning spaces, teaching presence often involves modelling and actively collaborating with students to define, curate, and produce course content. Learners are encouraged to assess themselves and their peers, and instructors intentionally provide opportunities

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Table 1: Open educational resources used in *Curious Collaboration*

Open Resource	General Purpose	Course-Related Purpose
WordPress*	Blogging	Course website Student blogging
Twitter*	Microblogging	Group discussion
TAGS Explorer*	Social network analysis	Informal feedback on participation
Google Hangouts*	Multimodal communication	Record and broadcast expert panels Collaborative infographic development
Diigo*	Social bookmarking	Collaborative document curation
Pinterest	Social bookmarking	Collaborative image curation
Google Docs	Document storage and editing	Collaborative writing
Canva	Graphic design	Student blogging and multimodal expression
Piktochart	Infographic design	
Bitstrips	Cartoon design	
Wordle	Word cloud design	
Bubble.us	Concept mapping	
Edraw	Concept mapping	
Flickr	Image hosting	
YouTube	Video hosting	

*Public, free-of-charge digital platforms introduced by the instructors for use in learning activities. All other platforms were introduced to the group by students and open participants.

to hone skills in self-reflection and critique (Anderson & Dron, 2010). To jumpstart their teaching presence in this eight-week course, the *Collaborative Curiosity* instructors filmed a course trailer that spotlighted the instructors and their personalities as much as the course content and format. Before and during the course, instructors engaged in reflective blogging, which was aggregated along with student work on the course website. They commented on student blog posts and engaged participants on Twitter during and between scheduled discussions. The instructors also recruited members of their personal and professional learning networks for the *Collaborative Curiosity* learning community. These contributors served as helpful resources and potential mentors for students enrolled in the course. Finally, the instructors invited *Collaborative Curiosity* participants to assess their weekly preparedness through a brief self-assessment tool (Campbell, 2006) and participation in discussions through social network analysis, visualized in real-time via a TAGS Explorer embedded in the course website (Hawksey, 2014). Figure 1 demonstrates a similar social network analysis-based data visualization of the *Collaborative Curiosity* Twitter community.
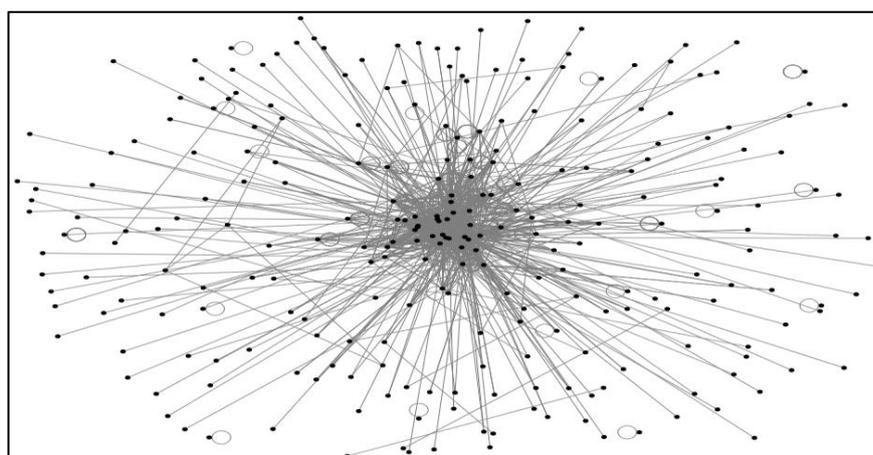

Figure 1. Sociogram of *Collaborative Curiosity* Twitter interactions (Nodexl; http://www.nodexl.org/).

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Designing Activities for Connected Learning

As an emerging pedagogical field, connected learning tends to prioritize instructional design, advocating for the creation of spaces and activities that encourage students to integrate formal and informal practices and contexts. *Collaborative Curiosity* was designed with specific attention to the three design principles found in the connected learning framework: production-centred, shared purpose, and openly networked. Production-centred learning environments encourage learners to produce and create with digital tools, working with a wide variety of media, knowledge, and cultural content in experimental and active ways (Ito et al., 2013). Shared purpose refers to providing students with opportunities to meet and engage with peers and mentors who share similar interests, provide useful insights, and can increase social capital. Openly networked learning spaces blur the boundaries between formal and informal learning practices and content, so that students can more easily make connections between academic, community, and personal-interest learning. The design principles are most effective when used in concert, encouraging students to engage in creation, sharing, and the curation of personally meaningful work (Garcia et al., 2014).

Collaborative Curiosity supported creativity, sharing, and networking in digital spaces through the use of creative makes, individual blog spaces, and public discussion spaces such as Twitter. The creative makes, inspired by the daily makes of *DS106*, an established exemplar of university-based connected learning (http://ds106.us), were brief (15 to 20 minutes) weekly assignments that required participants to use digital tools to create image-based responses to broadly worded prompts, such as "What does community mean to you?" Creative makes were included in the course design to encourage participants to: (1) express academically-oriented concepts though modalities not typically associated with formal academic projects; (2) situate abstract concepts (such as community) within student context and interests, therefore making them more relevant and easier to study; (3) improve digital literacy and digital self-efficacy through the exploration of new digital tools; and (4) have fun in academic contexts. The course also required learners to establish blogs so that they might publish in a public forum. A rapidly growing practice at VCU and elsewhere, blogging is meant to support formative learning processes as much as finished products (Hart, 2015). Learner blogs, particularly when used across courses, are designed to be launch pads for social learning: virtual meeting posts for students, their peers, and mentors that facilitate the formation and activity of affinity networks. By being openly networked on the public web rather than in closed learning management systems, they facilitate access to resources, inspiration, collaborators, mentors, and audiences beyond the local academic community (Groom & Lamb, 2014). Finally, *Collaborative Curiosity* provided opportunities for participants to interact with peers and mentors around a variety of subjects, predominantly through Twitter-based discussions, which were aggregated around the course hashtag, #CuriousColab (https://twitter.com/hashtag/curiouscolab). Although most of the conversation took place during organized, hour-long discussions in which participants worked together to connect assigned readings, panel discussions, individual research, and personal experience, participants also used the course hashtag to ask for assistance with new digital tools or assignments. While instructors sometimes answered these questions, others, often open participants, provided useful information in ways similar to that described Lee (2014):

> I was motivated to dedicate multiple hours toward my project, supported by a community of peers who freely exchanged ideas, suggestions, and feedback. I received immediate responses and accolades from classmates and the teacher....There were plenty of peer and teacher tutorials, modeling, observations, informal suggestions, and/or critical feedback. Through a combination of these various pedagogical learning opportunities, I often received just-in-time instructions. These practices echo many of the core properties of connected learning: having a shared purpose in an openly networked community that is interest-powered and peer-supported. (p.56)

Conclusion

When certain events occur, tools become available, or knowledge accumulates, it becomes inevitable that multiple people or groups will converge on the same ideas (Merton, 1963). Digital technologies, the Internet, and Web 2.0 are such tools, facilitating and co-evolving with a digital participatory culture and its related pedagogical approaches. Open education, networked learning, and connected learning are three digital age perspectives on teaching and learning that emerged from different times, places, and educational sectors, but possessed almost identical underlying assumptional frameworks, specifically, learning and education should be self-determined, social, relevant, equitable, and accessible. Because the constructions of "open," "networked," and "connected" are still emerging, share a philosophical orientation, and often exist in the presence of each

other, practitioners and researchers, particularly those new or unfamiliar with digital pedagogies, tend to confuse, conflate, or otherwise use them in ways that lack intentionality. The analysis of *Curious Collaboration* is meant to clarify the distinct angles of each field, while illustrating the complex and complementary interactions that can occur between them.

Open education, networked learning, and connected learning suffer from an interesting paradox; while some educational researchers and practitioners (often unintentionally) conflate the three orientations, the scholars who are studying and publishing within the three fields are often working through distinctly different scholarly outlets. In particular, connected learning, as an adolescent-focussed, out-of-school, US-based construction, exists separately from the other two, which are situated in predominantly higher or adult education, UK and European learning environments. Cross-pollination of ideas and experience across all three may strengthen the work of researchers and practitioners in each field, potentially enriching historical understanding (particularly in the case of connected learning), strengthening the bodies of supporting literature, increasing opportunities for collaboration, diversifying research designs, and improving the chance of securing the meaningful pedagogical change that each field seeks (Merton, 1963).

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