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Learners and learning contexts: New alignments for the digital age.

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TWG 7 Connected learning:

online human interaction and interaction with digital resources

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Introduction

In the last ten years, for the first time in history, a large part of the world´s population has been able to interconnect, one with another, instantaneously, sending and receiving information in the form of sound, images and text, for personal, family and community purposes, and for teaching and learning. At all levels of acquiring new knowledge—formal, non-formal, and informal—and of developing ever-greater practical capacity, from childhood to senior-citizen status, the possibility of using digital means to achieve these goals rapidly and with quality is now within the reach of an increasing number of individuals.

Online interaction with people, spaces and with digital resources for learning purposes is becoming common practice for educators and students. In connected (or networked) learning, the emphasis is put on connections. It can be between students from geographically distant classrooms and schools, regions, provinces, and countries as well as students engaged in MOOCs (Massive Open Online Courses). The interaction is generally symmetrical, with people playing the same role, but it can also be asymmetrical.

From a professional development perspective for educators, engaging online with colleagues beyond the school or education context, provides opportunities that could be considered as self-generating both in content, direction and opportunity. Connected learning environments are generally characterized by a sense of shared purpose, a focus on production, and openly networked infrastructures. Models that apply include: learning communities, communities of practice, Professional Learning Networks (PLNs), teacher groups, etc. all of which provide ways of bridging formal and informal learning environments.

Further elaboration on this fascinating and critically-important new element in the teaching and learning process will be found in the pages which follow. In this discussion paper, we explore connected interactions in regard to learning outcomes of peer culture, interests, and academic content from a range of perspectives (people, space, resources) to elucidate the true nature of connected interactions that are dynamically expanding what we consider as ‘learning’. A strong nuance about connected learning is that in its self-generated rather than externally determined, meaning that a quasi-environment may be ‘created’ but the learning connections are self-generated. In describing this in another way, it is possible to conceive of an educational center which offers a refreshing new model based on an idea in communications: a “pulling effort” on the part of the learner rather than the “pushing effort” on the part of the teaching institution.

We start with a theoretical framework around connected learning. Then, we successively examine specific cases concerning students, the place of spaces and resources. The case of teacher professional development deserves a specific place. We will finish with elements of discussion and then perspectives.

Some theoretical landmarks

To deal adequately with this entirely new universe, its components and potential, professional educators today are discovering that the theoretical frameworks which oriented “learning” in the past have so far been unable to furnish all of the new principles, criteria and tools now needed for measuring the complex issue of successful acquisition of knowledge and skills.

To Behaviorism, Cognitivism, and Constructivism, are now added new approaches to recently developed and dynamic human activities, such as Connectivism and Connected Learning, the latter being the subject of the present study.

Initiated as a pedagogic strategy and research subject in the 1990s, Connected Learning, also known as Networked Learning, began principally in K-12 studies, but subsequently expanded to include learners of all ages and, potentially, most areas of human knowledge and their acquisition. Considering the abundance of information suitable for learning available on the web today, its first principle is to encourage learners new to digital technology to seek out subjects which are of strong personal interest and which provide ample continuing motivation for study. Perhaps a brief and adequately succinct definition for Connected Learning is that found in Educause´s Learning Initiative: “…how to use connections to find answers, seek out mentors and experts, investigate procedures, experiment with possibilities, and develop competencies.”

In other words, connected learning can be “realized (simply) when a person is able to pursue a personal interest or passion with the support of friends and caring adults, and is in turn able to link this learning and interest to academic achievement, career success or civic engagement” (Ito et al. 2013). Its purpose is to enrich the imparting of foundational literacy and knowledge, while also diversifying and multiplying pathways to opportunity and meaningful participation in society. Therefore, connected learning doesn’t reduce learning to a phenomenon that takes place exclusively in the restricted spaces of formal education neither does it focuses exclusively on the online learning phenomenon. Rather, it refers to any learning experience where people co-create artifacts meaningful to their community (centered production), which affords abundant resources accessible to all (openly networked) who share a common purpose (shared purpose). This agrees with Hyett et al., (2019) when saying that internationalization learning through virtual technologies increases globalized and cosmopolitan societies that have the potential to facilitate transformative intercultural learning experiences and build cultural competency.

Student

What we consider ‘learning’ maybe need to be reconceptualised as a result of connected learning. For students, researchers have research typically focused on canonised school

based ‘learning’, with reference to discipline specific knowledge gains. However, moving to consider ‘mashups’ of personal interests and other’s social duties as learning paradigms?

According to Seely (2000) there are three new learning dimensions that emerged within these learners’ generations:

a)Literacy: today literacy goes beyond the reading and writing ability involving text, image and screen literacy it seems like today´s literacy means being your own librarian and learn to navigate through confusing information spaces. Navigation, perhaps will be the new main way of literacy.

b) Discovery based learning: this approach is far away from formal and authority based, lecture-oriented learning, there is an incredible amount of information available through the web called pre-eminence-learning.

c) Bricolage reasoning: this ability has shifted from a classical deductive and abstract way of thinking to one that should be constructed called Bricolage.This concept, studied by Levi Strauss, deals with the ability to find something (object, document or tool) and build something.

In French high schools, classmates are used to spontaneously creating private ways of communication through social media for example: Facebook groups, Messenger groups, Snapchat or other interfaces., with none of them dedicated to learning. Whereas, discussion forums are the favourite web application for students to ask questions to their peers about homework. In these forums, studies have showed that students are mainly looking for explanations rather than only the answer to the exercises (13%). However, there is evidence that school-related questions colonize non-school-related forums (e. g. forums dedicated to Horses or Firefighting). This reveals that students can pursue a personal interest or passion with the support of peers and can link this interest to academic achievement – a connected learning.

In Quebec, Remote Networked Schools (RNS) is a ministerial initiative which uses digital means for enriching the learning environment of small geographic isolation K-12 rural schools. These schools frequently encountered challenges such as lack of specialized resources for students, multi-grade classrooms, small numbers of registered students and professional isolation (Turcotte, 2008). In 2016, RNS was giving 250 schools located in 31 school districts access to information and tools such as videoconferencing (Via), Knowledge Forum (KF) and online shared catalogue of activities (Laferrière et al. 2016). As an open environment, their classrooms use resources that are accessible through the Internet. Class activities consist of performing knowledge co-development activities using Via, classroom discussion or peer-to-peer exercises on a routine basis (Laferrière et al. 2016) in order to foster a student-centred learning environment for collaborative knowledge-building of Bereiter & Scardamalia (2010). RNS class discourses revolve around students’ questions (as interest-powered) and puts their ideas into a process of co-development of knowledge (peer-supported) which constitutes a trace (production-centred) of the evolution of their collective discourse where ideas evolve and improve through the negotiation of meaning (Laferrière, 2005). The collective discourse is guided, on the one hand, by teachers who

strategically scaffold learners' collaboration accordingly to the educational aims (academically oriented), and, on the other hand, by students who are trying to understand deep disciplinary content (Turcotte, 2008). Thus, RNS set a learning community in an openly networked environment which is peer-supported, interest-powered and academically oriented.

A similar initiative has been launched several years ago in a region of France (Auvergne) and a first experience of a Mooc[1] linking primary isolated schools in Quebec, Tunisia and France has been organised in spring 2018 (see Ghabara, 2018).

Spaces

Platforms or spaces for connected learning entail a certain kind of context. The design for connected learning must be underpinned by notions of self-generating opportunities where learning is actioned by participation and contributions rather than receivership of content and stimulates/response based interplays. As such theories of constructivism and connectivism are employed. Duffy and Cunningham (1996) described constructivism as a learning theory that implies learning construction among information networks generated by users' communities. Whereas, for connectivism, knowledge is not constructed but emerges as a consequence of the connections given during network activities (Siemens, 2006). These theories underpin learning design in socially mediated spaces and are also being used to develop new platforms for connected learning.

Digital spaces such as Microsoft Teams and Aula (see Aula education) both provide an online environment that integrates a learning management system and social media. CLIxPlatform – a Next Generation Digital Learning Environment (NGDLE) embodies the constructionist principle by design for interactivity, creation, collaboration (CLIx, 2018). These features are markedly different than many, popular, consumption modelled, platforms/LMSes (learning management systems) in the EdTech market which generally focus on audio/visual tutorials based transmission/broadcasting pedagogy.

Concerning the massive open online courses (MOOCs), the first ones use a connectivist paradigm as networks of people and resources where users can design, pace and direct their own learning (Siemens and Downes, 2008). Still the current dominant MOOCs from most popular platforms (e.g. *Coursera, edX, FutureLearn, FUN, Ivers*) are not connectivists and even described as instructivist. However, these last establish a new form of distance learning. indeed, their courses takes place in a given time and open to social networks. Regardless the course's form, collaboration can both allow you to learn more effectively and expand your own working network.Through a study on a three MOOCs course provided by a leading French business school, we have seen this collaboration is often based on difficult application exercises. To solve them, some people confront their views either in small groups using digital tools (e.g. Whatsapp, Skype, e-mail) or through physical meetings, or with the whole community on discussion forums. In the latter case, people can also benefit from the help of the teacher and the pedagogical assistant. Some people then stay in contact with the people they met during the MOOC and increase their social capital,

sometimes allowing them to access new professional opportunities (Huguenin & Bruillard, 2019).

The QGS[2] MOOC, piloted at the University of Calgary (Alharbi & Jacobsen, 2018) offers flexible, accessible and connected faculty development for graduate supervision, and thus offers an innovative and responsive, interdisciplinary online learning community which enables interdisciplinary faculty to engage in and contribute to collaborative learning experiences, and to collectively improve the quality of graduate supervision available for graduate students. The conceptual framework for faculty development for quality supervision emerges from three learning theories: constructivism, connectivism (Siemens, 2006) and learning communities (Alharbi & Jacobsen, 2017). The QGS MOOC demonstrates three of four cMOOC characteristics: 1) autonomy of the learner (faculty participant when and where), 2) diversity of tools, learners, and knowledge (multimedia, multiple disciplines), and 3) interactivity (tasks, resources, timing).

Resources

In our ‘formal’ education portals, schools, universities, ministries, companies, syndicates, non-governmental entities, there has been an increase in the production of Learning Objects (LOs). LOs are digital content for online learning in a variety of media types: texts, videos, audios, images, graphics, computerized simulations, in large and small sizes (lectures and courses), and adaptable to multiple theories of learning. When ready to be disseminated on the web, they are encased in Open Educational Resources (OERs), as a kind of “protective travelling box,” and containing metadata which permit cataloging the subject of its content. To be called an OER, the box and its content must be in open format (images in PNG, video in WebM, web pages in HTML), and be either in the public domain or bearing an open license (of the Creative Commons type), in order to be reused, retained, revised, recombined or distributed freely, as long as there is attribution given of the original source and no commercial use made.

Created on all five continents, these LOs and OERs represent the new “bricks” with which learners can construct the “edifices” of their own individual knowledge-bases. What is required now is that there be created, scattered around the world, “referatories” which themselves do not hold the voluminous contents of the OERs, but rather offer digital links to the “repositories” containing the LOs.

However, recent studies shows that OER provide interesting resources but are not sufficient for supporting process of pedagogical renewal, requiring creating or remixing OERs. According to Hodgkinson-Williams & Trotter (2018), using OER “as is” (copying) and translating OER are uncritically insufficient,

For several decades, the development of the uses of digital media has led to particular changes in teachers' work, particularly with regard to the sharing and diffusion of open educational resources: for example, NDLA is a Norwegian project, initiated in 2007, aimed at collaboratively designing and disseminating free and open educational resources of good

quality and whose development would be continuous, in the various subjects taught at the secondary level. The stated objective is to contribute to the development of a culture of sharing within upper secondary education in Norway. In her thesis work on the exchange of educational resources in secondary education in Vietnam, Thai N'Guyen documented the factors that favour and hinder the sharing of resources among teachers: the first obstacle concerns the lack of confidence of teachers in their own production; then comes the lack of time, the lack of tools and skills in their manipulation, copyright and recognition issues, a lack of a culture of sharing, with sometimes the will to keep documents rare because of competition between teachers. Factors that promote sharing include incentives, having quality, easy-to-use resources, trust in a group with discussion features in the sharing sites (Nguyen & Bruillard, 2011).

Teacher professional development

Teacher isolation has been linked to a lack of collaboration between teachers (Flinders, 1998) leading to continuing teacher professional development as an opportunity to solve this issue (Batra, 2013). Continuing professional development can take the form of formal and informal learning. Professional Learning Networks (PLNs) are dynamic, multifaceted systems of learning support. Trust (2012) defined PLNs as a “system of interpersonal connections and resources” that can be used for informal learning, collaboration, and exchanging knowledge and ideas (p. 133). PLNs are informal professional development spaces that enable teachers to self-generate content through interactions with other educators.

While research related to educators’ PLNs is growing, the majority of the studies during the past decade have focused on educators’ participation within a single digital space, such as Twitter, Pinterest, Reddit, Facebook, and Edmodo (Hood, 2017; Prestridge, 2019). Findings from these studies indicate that teachers often turn to digital settings to augment their professional development due to the irrelevance of what is offered at the school site (Prestridge, 2019). There are also social benefits from connecting, communicating, and collaborating online, such as gaining access to social and emotional support (Carpenter & Krutka, 2014; Hur & Brush, 2009; Seo, 2014); expanding learning opportunities beyond their local contacts, (Manca & Ranieri, 2017; Schlager, Farooq, Fusco, Schank, & Dwyer, 2009); and overcoming social isolation (Trust, Krutka, & Carpenter, 2016).

Researchers have agreed that professional learning experiences should be long-term, ongoing, social, constructivist, and situated in classroom practice (e.g., Desimone, 2009; Garet et al., 2001; Goskey, 2002; Timperley & Alton-Lee, 2008; Van den Bergh et al., 2014). Yet, traditional teacher professional development spaces often fail to meet such criteria. From this perspective, the social constructivist activities available in PLNs in digital spaces are different to those in more traditional face to face PLN spaces.

Supported by teachers' uses of social web technologies, the development of various forms of teacher collectives can be observed in many countries (Lantz-Andersson & al., 2018, p. 303). The contrasting analysis of 52 studies of formal and informal online teacher communities conducted by Lantz-Andersson & al. (2018) shows that "while

formally-organized and informally-developed communities address different needs among teachers and support different outcomes, they also share several common characteristics. Indeed, regardless of type, online communities can be a valuable means of developing supportive and collegial professional practices".

Santana Bonilla and Rodríguez Rodríguez (2019) identify four types of educational web portals: "institutional portals set up by an educational administration; teacher networks portals which contain materials elaborated by teachers and managed by different agents; portals not designed for formal education mastered by different agents; and commercial platforms operated by a publishing company". Access to the resources produced can be completely open, especially in the case of institutional portals and educational portals that do not necessarily concern formal education.

Discussion

Identify some issues and debates

Connection with other people or with robots: AI and chat bots for example

Self-directness?

Issue of recognition (see Bruillard & de Coëtlogon, 2019): open recognition?

Perspectives

To be written afterwards

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[2] Quality Graduate Supervision