Connecting beyond the Classroom - Move from local to global learning modes

Abstract
New pedagogical approaches have emerged in K-12 schools through the use of ICT for connected learning and online global collaboration. These approaches are by educators who are motivated to forge external relationships with others beyond the immediate learning environment and who are willing to modify and adapt curriculum to include connections beyond the immediate classroom environment. By doing this they have brought rich global, cultural and life-changing experiences to their students.

This paper encourages a shift in education practice and shares a framework for making vital connections beyond the classroom. Specific curriculum resources and pedagogical objectives are discussed based on research literature and experience. A paradigm shift is suggested that utilises online technologies for learning in ways that support connected and collaborative learning to build global understanding and digital fluency. This is based on the theory and practice of connectivism, constructivist modes of learning and online collaborative learning (OCL). The Online Global Collaboration Taxonomy is shared as a pathway and guiding framework to take learning from local to global modes through connecting beyond the classroom in a multitude of ways.
Introduction
In recent years there has been an increased focus on the advantages of global education to support collaborative teaching and learning (Lindsay, 2016a). Through positive actions by government and organisations (P21 Framework for state action on global education, Asia Education Foundation, Asia Society) educators are encouraged to connect beyond the classroom and include global as well as local learning modes. There has also been an increased focus on Web 2.0 tools (the read and write web, such as blogs and wikis) that effectively support new ways of learning. This article explores the educational theories, pedagogies, strategies and skills needed to support connections and collaboration using online technologies.

Paradigm shift in teaching and learning
The wave of technologies in schools, including new relationships between humans and technology, over the past 20 years (Facer, 2011) has supported change in learning. This includes the capacity to allow for sharing of ideas and learning from and with a worldwide community with a more participatory experience including customisable outcomes by the participants (Davidson & Goldberg, 2009). Learning to function and survive in new contexts as an educator and as a learner is the paradigmatic shift being seen in education (Harasim, 2012). The video ‘Collaboration: On the Edge of a New Paradigm’ (Birkegaard, 2014) discusses a shift from a world about content to a world about context.

Looking to the future
Work in the future will require skills that are cross-platform, freelance and flexible, local and global (Boudreau, 2016). The CEDA report identifies a lack of insight into the critical skills required for the current and future workforce stating that ICT ubiquity in the future means digital literacy must be a basic competency for children, and workers of the future will have a more in depth approach to computer literacy (CEDA, 2015). Increased global interconnectivity plus diversity and adaptability are identified by the Institute for the Future (Davies, Fidler & Gorbis, 2011) as ‘drivers’ or disruptive shifts that will reshape the workforce landscape, with key skills including cross-cultural competency and virtual collaboration.

It discusses the imperative of collaboration to solve global issues in health, society, science and economics. Arteaga (2012) researched outlier educators who used collaboration to formulate a digital pedagogy and concluded that what is needed is educator professional learning that adopts social interactive practices. These practices are in conjunction with reorganisation of learning spaces, both physical and virtual, to accommodate new modes of knowledge flow, as well as opportunities for learner connection, recombination and re-creation.

Connection beyond the classroom - a new learning ecology?
Siemens (2006a) outlines a learning ecology as a diverse, multi-faceted learning space where specific tasks are aligned with the unique nature of different learning approaches. In his book ‘Open’, Price (2013) describes the Global Learning Commons that connects the local to the global, the formal to the social and the public to the private. His vision is one of an ecology of learning that is inclusive and innovative. Characteristics of this global learning commons are:
  • participation
  • passion
  • purpose.
Arteaga (2012) states that collaborative and global (beyond the classroom) practice, forging of new pedagogies, along with digital technologies and the use of social media, engaged participants in a new learning ecology. This open system, this new ecology of learning uses technology to support relationships that allow learning to happen anywhere (Brown, 1999) and provides for integration of numerous approaches in diverse, multi-faceted learning spaces (Siemens, 2006a).

Educators need to consider how to define the classroom in this new learning ecology. The role of Web 2.0 technologies, connectivity and virtual learning (Greenhow, Robelia & Hughes, 2009) is integral to this definition. One goal here is to build personalised and learner-centred communities of practice, social networks and collegial groups (An & Reigeluth, 2011), where new teaching methods and tools can provide pathways to connections.

O’Connell (2016, p. 43) states, ‘Our work as educators has to centre on helping to meet future learning needs by fostering a culture of inquiry within a sustainable learning ecology that is shaped by the ubiquity of information and globally responsive pedagogical practices, that are driven by collaboration and informal learning in multiple access points and through multiple mediums’. As teachers, education leaders and students themselves are embedding collaborative practice into the curriculum, within and beyond the classroom, it is imperative that essential influences and motivations are understood. For example, the 2016 ISTE Standards for Students (International Society for Technology in Education), include the standard ‘Global Collaborator’, whereby, ‘Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally’. In the context of the Australian Curriculum, online classroom connections enable students to demonstrate the general capabilities of:

- ICT capability
- personal and social capability
- intercultural understanding.

The International Education and Resource Network (iEARN) have connected classrooms globally for over two decades using learning circles as a unifying strategy.

**The elevator speech for connecting classrooms**

Purposeful connection beyond the K-12 classroom can serve many purposes. There are four concepts developed as the basis for connecting beyond the classroom (Lindsay, 2016b):

- prepare all learners to be globally competent
- provide a focus for digital and online technologies
- create a new paradigm for modern learning
- support glocalisation.

They form the top-level rationale for connecting and collaborating globally.

Connection beyond the classrooms is vital to prepare all learners to be globally competent. This refers to being able to:

- act on issues of local and global significance
- frame understanding of the world through connected experiences that go beyond the typical textbook approach and the limitations of face-to-face or local interactions
- turn intercultural differences into intercultural understandings by breaking down stereotypes and challenging attitudes of cultural superiority and socioeconomic dominance.

**Global competence is the cross-cultural skills and understanding needed to communicate outside one’s environment and to act on issues of local and global significance. (Lindsay, 2016)**

Connecting beyond the classroom supports global citizenship and competency because it allows students to frame an understanding of the world through connected experiences beyond the limitations of face-to-face interactions (Lindsay, 2016b). Hanvey (1982) discussed the ‘attainable global perspective’ and introduced five dimensions including cross-cultural awareness and knowledge of global dynamics. Paterson emphasises ‘Developing global competence is not about adding a new unit to the curriculum but about seeing teaching practice through a new lens’. (Paterson, 2016, p. 199).
The Asia Society, in ‘Educating for Global Competence’ (2011), discuss ‘the changing demands of work in a flattened economy’. It shares pillars for global competence and states globally competent students must have:

- the knowledge and skills to investigate the world
- weigh perspectives
- communicate ideas
- take action
- apply disciplinary and interdisciplinary expertise.

The Global Digital Citizen Foundation encourages people to understand we are no longer isolated, we are all global citizens and technology has eliminated many of the boundaries by enabling communication, collaboration and dialogue.

Connection beyond the classrooms is vital to provide a focus for digital and online technologies

As a disruptive, immersive and ongoing innovation, the ability to connect beyond the classroom builds skills around the use of new or emerging tools for online and ubiquitous computing. Veletsianos (2016) posits that by employing emerging technologies to learning, new ways of viewing the world are also opened up and new ‘ways of exploring knowledge, scholarship, collaboration, and even education itself’ (Veletsianos, p. 11). As students engage in online collaborations, they gain an understanding of the power of technology to benefit humanity. Bates (2016) lists ‘digital skills’ as required in a digital society and states, ‘[t]he use of digital technology needs to be integrated with and evaluated through the knowledge-base of the subject area’ (Bates, p. 19).

Connection beyond the classrooms is vital to create a new paradigm for modern learning

Connected learning pedagogies challenge isolation and change the way we teach and learn. The terms ‘flat’ and ‘unflat’ relate to concepts by Friedman (2007) about how digital technology has brought the world closer together and consequently information or people do not have to go ‘around’ the world anymore; connections are flat; collaborations are flat. An ‘unflat,’ (non-networked, hierarchical) non-collaborative learning environment is disconnected and isolated. Learners must be able to go beyond the textbook to connect, not just with current content, but also with people who are the voice - peers, experts and online communities – building collaborations for deeper understanding of the world.

The paradigm shift to include online collaboration as a norm is shared by Lee and Ward (2013, p.3) who state that ‘while insular, ‘standalone’ teaching has characterised the teaching of a paper-based world, collaborative teaching could well characterise that of an increasingly digital and networked world; a world where collaboration and integration are the norm’.

Connection beyond the classrooms is vital to support glocalisation

Used in ‘The World is Flat’ by Tom Friedman, glocalisation is a combination of the words ‘globalisation’ and ‘localisation’. He states, ‘The more you have a country that naturally glocalises – that is the more your own culture easily absorbs foreign ideas and best practices and melds those with its own traditions - the greater advantage you will have in a flat world’ (Friedman, 2007, p. 422). Glocalisation is about accepting differences and applying to the local context without homogenisation. The goal is not for one culture to emerge but to find differences as well as commonalities. Tagüeña (2008) shares that, ‘A glocal approach means presenting global knowledge within a local context that respects human rights. It encapsulates the concept, think globally, act locally’.

Connected and collaborative learning - essential understandings

To best understand the suggested framework for connections between classrooms it is important to explore essential understandings about connected and collaborative learning - the theory behind the practice.
Collaboration in learning is easy to consider on the surface, but tough to do well in practice. One of the most complex transitions for students and teachers to make is the move from a pedagogy that centres on “individuals” demonstrating their learning to a pedagogy that embraces groups demonstrating their learning. (Fullan, Langworthy & Barber, 2014, p. 26.)
Collaboration in an online digital world
Pedagogical approaches to online collaborative learning

The internet has changed and continues to change the way learners connect by providing new forms of interaction and social construction. The current generation has grown up collaborating using online technologies (Tapscott, 2009) and these provide a platform for engaged learning, deeper understanding and exciting collaborative learning outcomes. The educator’s role is critical for making a success of opportunities afforded by technology in online collaborative construction environments (Garrison & Cleveland-Innes, 2005; Laurillard, 2012). However, student digital fluency and autonomy within the learning environment, and ability to understand collaborative working modes are essential skills and attitudes. Casey and Evans (2011) found students could take control of many aspects of learning and this supported a communities of practice model.

Moving into the age of online collaboration means understanding the importance of contribution and shared practice, including shared research and co-creation and a greater emphasis therefore on collaborative rather than individual inquiry (Scardamalia & Bereiter, 2006). The social nature of learning and online collaboration leads to the development of a ‘Community of Practice’ or CoP, a group of networked learners who share a craft and/or a profession (Wenger, 2000) and experiences are shaped by the many as opposed to the individual teacher (Wenger, White & Smith, 2009).

Emerging approaches to digital scholarship question what knowledge is, how it is gained and how it is shared. Veletsianos and Kimmons (2012) share a new form of scholarship called ‘Networked Participatory Scholarship’ that reflects scholarly practice and participatory technologies.

Changes from didactic to active learning and collaborative techniques have prompted a new theory of learning, Online Collaborative Learning (OCL) that focuses on ‘collaborative learning, knowledge building and Internet use as a means to reshape formal, non-formal and informal education in the Knowledge Age’ (Harasim, 2012, p. 80). Yet despite internet adoption in the real world, teachers are reluctant to adopt new practices using this in the educational world (Harasim, 2012).

Collaborative learning and pedagogical change

Pedagogical capacity, an educator’s repertoire of teaching strategies and partnerships for learning, has changed and will continue to change as technology becomes more pervasive to include content delivery and consumption as well as collaboration and creation of new knowledge and a focus on the process of learning (Fullan et al., 2014). The research of John Hattie (2012) shares new pedagogies where the educator has a new role as activator, including educator-student relationship, reciprocal teaching, and feedback (Fullan et al., 2014). According to McLoughlin and Lee (2010), pedagogical change requires knowledge of appropriate teaching methods and awareness of the learner experience while using Web 2.0 technologies and social media. A wiki, for example, can be pedagogically ineffective if it does no more than replicate a publishing environment.

(Laurillard, 2012). Harasim (2012) states the solution to pedagogical transformation lies in a solid strategy for online collaboration.

Laurillard (2012) advises that technology is an enabler only if the learning is carefully designed. Effective pedagogic design is difficult for online collaborative authoring and discussion environments that are intended to produce shared output. This is due to different expectations and subsequent differing roles of students and educators. Callaghan and Bower (2012) and Casey and Evans (2011) reveal factors affecting behaviour and learning in social networking sites and focus on pedagogical implications and in doing so challenge traditional modes of teaching and learning.

More recent research by Tondeur, van Braak, Ertmer and Ottenbreit-Leftwich (2016) concludes that effective technology integration should not be a stand-alone event, and that teachers’ beliefs about good education are a critical dimension in developing professional development and meaningful use of technology in education. Choi and others (2016) advise that collaboration and communication among students from different countries will not be achieved without cultural and social support and shared research on Globally Connected Classroom GCC-STEM activities. The model they developed, based on constructivist theory, uses global learning communities and has great potential in contributing to global STEM education and collaborative learning (Choi, et al., 2016).
What is online global collaboration?

Online global collaboration is where partnerships are made through connections beyond the classroom for the purpose of working and learning together on specific goals and co-creating new knowledge. Key factors are the use of online technologies, design features of the collaboration, as well as changes made in teaching and learning structures for all collaborative partners involved (Garrison & Cleveland-Innes, 2005).

With the advent of the internet and new technologies, online global collaboration has evolved from the 1.0 version of information exchange, to the 2.0 version where artefact exchange as well as information exchange takes place. With the development of faster internet and better technology tools, online global collaboration as the 3.0 version allows learners to network, collaborate, co-create information and artefacts, and build knowledge together online and share this with others (Lindsay & Davis, 2012).

A working definition of online global collaboration: Online global collaboration broadly refers to geographically dispersed educators, learners, classrooms, schools and other learning environments that use online technologies to learn with others beyond their immediate environment in order to support curricular objectives, intercultural understandings, critical thinking, personal and social capabilities and ICT capabilities (Lindsay, 2016b, p. 139).

It is important to understand that the term global, can also apply to more localised connections, for example in the same town or state, particularly within close time zones. In large multi-time zone countries like the USA and Australia, it is labelled global collaboration when students connect across the country.

Regardless of where participants are, connecting and collaborating beyond the immediate learning environment is the goal - and it generally takes the same tools, habits, and attitudes to connect locally as it does to connect more globally.

Harasim (2012) states that through OCL applications there needs to be an emphasis on knowledge work, knowledge creation and knowledge community. In practical terms, Lindsay (2016b) shares that online global collaboration in the classroom means:

- geographically dispersed learners
- use of online technologies to forge viable connection and communication
- learning is ‘with’ not just ‘about’
- collaborators share ideas online and co-create new understandings.

The online global collaboration taxonomy

Introduction to the taxonomy

In ‘The Global Educator’ (Lindsay, 2016b), a range of design and pedagogical approaches for embedding global learning and online collaboration into the curriculum through connecting classrooms is explored. The Online Global Collaboration Taxonomy was developed to provide a stepped approach for educators to apply. It includes two main communication modes – synchronous and asynchronous, and five ‘steps’ or levels.

Synchronous, meaning in real time, refers to activities such as video conferencing, for example a Skype call; virtual classroom interaction and virtual excursion.

Asynchronous, meaning not in real time, refers to activities such as online discussion forums, blogging, sharing multimedia and other virtual communication activities.

The taxonomy makes it clear that effective online global collaboration means being able to sustain connections beyond the virtual, synchronous experience and being able to build asynchronous networks and online communities to support collaboration. Time-zone differences mean that synchronous learning is not always possible during school hours. In fact, it is not as valuable as asynchronous collaboration where global issues can be explored and problems solved within global partnerships across a period of time.

Theory supporting the taxonomy

The theoretical framework for this taxonomy tool is developed from connectivism (Siemens 2006a, Downes, 2014), social constructivism (Vygotsky, 1978), and online collaborative learning (OCL) (Harasim, 2012). It is informed in part by the revised Bloom’s Taxonomy of Educational Objectives that classifies educational goals, objectives and standards and shares how a learning pathway progresses (Krathwohl, 2002). The goal of the tool is to support educators’ understanding of connected and collaborative learning and how they can build on existing practices to implement progressively more challenging types of online collaborative learning in a global context.
**Level 1: Online interactions**

This initial level applies to connecting classrooms asynchronously to share learning activities. Practices here focus on expanding communication from local (within the classroom - intraconnection) to global (beyond the classroom - interconnection) through digital platforms such as blogs, wikis, and online multimedia tools. This allows a window to open into the classroom to those beyond for connected learning activities, such as sharing blog posts, and co-commenting on posts, or contributing to a common Twitter hashtag.

**Examples:**
- **The Monster Project**
  - A simple collaboration where students in one class describe a monster so that those in the partner class can then draw it and share the creation
- **Quadblogging**
  - Typically four classrooms are grouped for the purposes of sharing their blogs for student comments on a rotation basis.

**Level 2: Real encounters**

The parameter of this level is being able to connect in real time (synchronous) to external learners and experts. Digital tools are employed, such as Skype, Google Hangout and other video and chat-based apps. This level is limited by geographic proximity, given that schools are potentially in different time zones. Educators need to be aware of where they are and the respective time zones of those they want to connect with - opposite sides of the world will have more difficulty connecting during normal school daytime hours.

**Examples:**
- **Skype in the classroom**
  - The Skype in the classroom website shares three main objectives for connecting classrooms:
    - to collaborate with other classes
    - to find guest/expert speakers
    - to take a virtual excursion anywhere in the world.

**Level 3: Online learning**

The aim of this level is to encourage learning through digital interaction, building online communities and sharing multi-modal artefacts. It applies to the development of online communities to support curriculum objectives and may be geographically localised or global. The learning focus is asynchronous although some serendipitous synchronous communication may take place. Tools used include the ability to share multimedia online. A MOOC (massive open online course) is a typical example, or a collaborative wiki where learners interact via a discussion facility, and/or share ideas/artefacts via the platform.

**Examples:**
- **PenPal Schools**
  - PenPal Schools provides curriculum-guided online exchanges through pairing students across classrooms
- **Global Youth Debates (GYD)**
  - GYD is formal debating in an asynchronous format and provides a facility for students to connect globally in order to explore, share and debate pertinent global issues.

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**Taxonomy levels – description and examples**

**Level 1: Online interactions**

- Blog posts, sharing artifacts online

**Level 2: Real encounters**

- Skype, webinars, VC, online chat

**Level 3: Online learning**

- MOOCs, other distance education

**Level 4: Communities of practice**

- Global projects, specific outcomes

**Level 5: Learning Collaboratives**

- Global collaborative communities

**Fig. 1: Online global collaboration taxonomy, Lindsay, 2016**
Level 4: Communities of practice
As distinct from Level 3, this level is designed for the purpose of specific learning objectives as a global community of learners. The community of practice would normally have a shared objective such as a global collaborative project and probably a set timeline that dictates workflow and communication patterns. The goal is to connect students directly with each other through both synchronous and asynchronous modes and to foster diverse online global collaborative practices that may be teacher and/or student led.

Examples:
- iEARN Learning Circles
- Learning circles developed by Riel (1996) for the International Education and Resource Network are highly interactive project-based partnerships. Each circle consists of a small group of schools located in different countries. Teachers determine the theme and topic for interaction and communication methods. There is a timeline and a set outcome such as publication of a collaborative ebook or website. Web 2.0 and other tools are used for the collaboration as determined by the teachers.
- The Global Read Aloud (GRA)
- GRA is an award winning global project that takes place in early October and runs for six weeks. The aim is to find partnerships for all classrooms in pursuit of reading a defined text at the same time over six weeks. Teachers communicate to determine real time and asynchronous learning modes including commenting on blog posts, video blogs, Twitter feeds, and shared resources.

Level 5: Learning collaboratives
This level features extended collaborative communities that foster learner autonomy for online global collaboration. The goal of a learning collaborative is to redesign the learning paradigm to encourage participants to share the lead in connecting and collaborating and co-creating shared outcomes. As distinct from Level 4, learning collaboratives ‘flatten’ the learning to the extent that all participants are equal members of the community, have equal responsibilities and expectations for contribution and collaboration. A student has the ability to connect and interact and learn with anyone in the community independently to the teacher and has the shared responsibility of maintaining collaborations and meeting workflow outcomes.

Examples:
- Flat Connections Global Project
- Designed for high school levels this collaborative includes an extended community including students, teachers, learning concierges (Bonk, 2007) (in this context referring to an educator who supports knowledge construction in a non-hierarchical approach to learning globally) and judges (of student-created multimedia). The goal is to ‘flatten’ the learning so that true collaborative research in a global community of mixed classroom groups takes place, with outcomes such as enhanced skills with online interactive learning modes, co-created multimedia and intercultural understanding.
- Connect with China Collaborative
- This learning collaborative is where participants from within China are connected with those beyond China to support a wide variety of learning objectives. Authentic themes and collaborative working modes aim to bridge the global gap and engage participants in global issues and problem solving. The community consists of teachers, students, non-government organisations, members of the community in all participating countries.

How to use the online global collaboration taxonomy
Successful online global collaboration requires some structure and planning. The taxonomy provides a pathway for K-12 educators to plan interactions across the curriculum and across the school year. This includes planning for synchronous and asynchronous learning modes, use of existing and emerging online technologies, and intensity of collaboration and collaborative outcomes. As a constructivist application, learning in the lower levels enables progressive building of skills for the higher levels. Starting with Level 1: Online interactions and culminating in Level 5: Learning collaboratives, educators can design and/or search for appropriate online local and global partnerships and experiences for their students.

The taxonomy is not meant to be prescriptive, and educators must be mindful that they could be implementing one or more modes simultaneously or over a period of time (such as an academic year), or could be implementing a blended approach across levels depending on the learning objectives at the time.
Conclusion

Educators across the world are showing what the possibilities are for engaged and collaborative learning leading to enhanced outcomes by connecting beyond classrooms. This article has shown some of the related research and shared ideas for making the move from local to global learning modes using online technologies with reference to the Online Global Collaboration Taxonomy.

To connect beyond the classroom, and move from local to global learning modes, it is imperative to understand the digital collaborative and global communication paradigm and the shift to constructivist and connectivist teaching modes. Ongoing practice must embed knowledge of learning theory of the 20th century and emerging theories of the 21st century, such as online collaborative learning (Harasim, 2012). Online learning is no longer peripheral or supplementary; it has become an integral part of mainstream society (Harasim, 2000).

Schools must develop a connectivist model for learning and teaching, and support educators in the importance of using online technologies in the classroom for important external connections (Kop & Hill, 2008). Constructivist approaches, including social constructivism where collaborative learning combines constructionism with social learning (Laurillard, 2009) must drive learning design and pedagogical approaches.

Implications for practices at K-12 levels include:

- fostering a deeper practical understanding of how to use online technologies for blended and global learning modes
- how to develop and maintain networked communities and embed collaborative pedagogies
- how to empower learners for autonomous online global collaborations.

Educators should plan for every student at every level of K-12 to have at least one globally connected learning experience each year, and then build on this so that many levels of the Taxonomy are embedded into learning across the curriculum and across learning practices and pedagogical approaches regularly.

Selected resources

Asia Education Foundation (Australia)
Asia Society (USA): Educating for global competence
Global Digital Citizen Foundation
P21 - Partnership for 21st Century Learning Framework for state action on global education
K12 Online Conference Keynote Trilogy 2016 - Julie Lindsay, ‘Global narratives: Collaboration on the edge’
The 4CS Research Series - Collaboration - P21
uLearn EdTalk (2016) - Julie Lindsay, ‘We are a global community - let’s learn together’

Finding partners and global learning experiences:

Flat Connections (Online global projects K-12 levels, Online educator professional learning courses)
Global Educators and Collaborators Facebook Group
The Global Education Conference
International Education and Resource Network (iEARN)
Center for Interactive Learning and Collaboration (CILC)
Global SchoolNet
Taking IT Global for Educators
Asia Education Foundation
Skype in the classroom

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