TWG 11: Cross-cultural alignments, fertilization, differentiation: bridging the gaps through technology

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Introduction

In the digital era where globalization and migration are part of education, it is difficult to define cultures and determine how much it is related to nationality, religion or identity. Culture includes traditions, heritage, language, religion, ancestry, aesthetics, thinking patterns and social structures. Digital technologies represent a two-edged sword that may either contribute to the destruction or the revitalization of cultures (Resta & Shonfeld, Yazbak Abu Ahmad, & Wallace, 2018). The effects of media and related technologies have contributed to the loss of culture and languages. For example, 600 languages have been lost in recent years and currently losing one language every two weeks (UNESCO, 2010). This trend underscores the importance of language awareness across the globe (Finkbeiner & Knierim, 2015). Although the Internet has contributed to globalization and the homogenization of culture, it also provides new opportunities for the revitalization of culture and for fostering cross-cultural understanding.

In recent years, the use of online projects providing opportunities for collaborative learning in a multi-cultural environment, even between hostile cultures, has been increasing. Information and communication technologies serve as a significant lever for learning, with affordances for various teaching and learning approaches. The digital environment enables the formation of heterogeneous groups that were not possible in the past due to physical limitations. Such an environment creates learning opportunities with students from different cultures and countries (Austin & Hunter, 2013; Shonfeld, 2017) to interact and learn together. It allows for the formation of relationships without the influence of stereotypes that may arise from external appearances (Shonfeld, Hoter & Ganayem, 2013) and can even contribute more successfully to cross-cultural understanding than a face-to-face intercultural meeting (Hasler & Amichai-Hamburger, 2013). Digital technologies can also be used to enable immigrants to begin to learn the language and the culture, either prior to or after their arrival in the new country (see Appendix: Bridging the gap through technology: a lack of empirical data).

Examples of projects that use ICT to connect cultures

Research Project – Culturally responsive use of ICT to support indigenous students' learning
The use of digital technology to support students' learning has become increasingly more commonplace in mainstream primary classrooms. In regards to supporting indigenous students, how are teachers using ICT, in culturally responsive ways, to support their learning?

In this project, teachers completed a survey, were interviewed, and observed in the classroom to examine how they used ICT to support the learning of their indigenous students. An aim of

the project was to extend these teachers' professional learning by having them inquire into their own practice (Ministry of Education, 2007), and form a community of practice (Wenger, 1998) to further develop their knowledge of Māori pedagogies (e.g. Rewi, 2007; Gay, 2010; Glynn, Cowie, Ortell-Cass, & MacFarlane, 2010), cultural competencies (Ministry of Education, 2011) and use of digital technology to support Māori students' learning.

The Education Council of Aotearoa New Zealand provided the document, *Tātaiako: Cultural Competencies for Teachers of Māori Learners*, to all New Zealand pre-service and in-service teachers. The aim of Tātaiako is to assist teachers in privileging Māori learners to achieve education success as Māori (Ministry of Education, 2011). In examining the teachers' use of ICT with their Māori students, the teachers' knowledge and use of culturally responsive pedagogies and practices was also explored.

TEC (Technology, Education and Cultural diversity)
The TEC model that was funded in Israel harnesses ICT to support intercultural education. It implements a gradual collaborative learning model based on advanced technologies for teachers, pre-service teachers and pupils from different ethnic groups and religions, yielding constructive dialogue and cooperation between diversified groups, and eventually - tolerance and mutual respect (Shonfeld et al, 2013). The collaborative learning model of advanced internet technologies is implemented within small teams from diverse cultures by the educators of the participating groups, progressing gradually from on-line communication (written, oral, video) to face-to-face interaction (Hoter, Shonfeld, & Ganayem, 2009). Through collaboration in joint assignments over a period of one year, team members get to know each other, develop mutual respect, eliminate stigmas and reduce mutual prejudices. The in-service educators then implement the program in public schools, and thus serve as major agents of social change, having influence on generations of students. Research has shown that the TEC Model yields outstanding results (Walther et al, 2015).

The Dissolving Boundaries Program
 Following the Belfast Peace Agreement of 1998, the locally elected administration in Northern Ireland and its counterpart in Ireland, set up the Dissolving Boundaries Program which was funded from 1999-2016 and involved some 50,000 young people. Evidence has emerged from evaluation of this project that a blended approach has been welcomed by teachers. In the design of this work, the combination of the contact hypothesis (Allport, 1954) and the reach of the internet were found to be critical (Austin & Hunter, 2013; Hasler & Amichai-Hamburger, 2013). Moreover, recent research indicated that even a year after the contact came to an end pupils displayed more interest and knowledge than matched pupils who had not been involved (Rickard, Austin, Smyth & Grace, 2014). Their findings were confirmed by external inspection of the program (Education and Training Inspectorate, 2010/11) and external evaluation (Bonnell et al, 2010). Key conclusions showed that pupils gained better understanding of each other and developed enhanced ICT skills. Teachers also gained extensive professional development through having to use ICT to plan joint work with teachers in another jurisdiction.

Nasa Project
The Sun-Earth Days team at NASA celebrated "Ancient Observatories Timeless Knowledge" and "Ancient Mysteries-Future Discoveries" in 2005 and 2011, respectively. Both themes featured archeoastronomy as well NASA spacecraft missions that deepened our understanding of the Sun and its impact across the ages. On the web pages and in the webcasts NASA scientists and educators co-presented with native Americans at the Chaco Culture National Historical Park in Southwestern United States and Chichen-Itza in Central Mexico, both of them UNESCO World Heritage Sites.

NASA's STEM Innovation Lab
NASA's STEM Innovation Lab is a think tank with an emphasis on space science content applications. It brings together NASA scientists, engineers and educators to explore and develop new ideas related to infusion of educational technology into STEM (Science, Technology, Engineering and Mathematics) activities, programs, and approaches. It also provides users a platform to share their ideas, research and results. Currently there are close to three dozen stations at Goddard Space Flight Center, directed by Troy Cline.
Through Dr. Nancy Maryboy and Dr. David Begay of the Indigenous Education Institute, the lab idea is replicated in the Navajo Nation's Little Singer Community School. Students did not only replicate key chains, but also printed pin hole projectors for the 2017 eclipse. They also learned about the solar system science in their own tradition as well as through NASA missions.The Lab may reach the Molokai students who are mostly native Hawaiians and who constitute one of the most underserved communities. Through these partners the Lab also hopes to set up "outposts" along the US/Mexican border, again reaching out and engaging more underserved and underrepresented learners.

The Four Directions Project
The project was designed to enable Native American schools develop culturally relevant curriculum and foster cross-tribal cultural understanding using technology. The project involved a partnership between Native American reservation schools and tribal agencies, the University of Texas at Austin and Kansas University. The nineteen member schools in 10 states set their own curriculum development goals based on local needs. Summer institutes provide teacher technology workshops and project development. Online mentors, an electronic library, and a virtual museum fostered an online learning environment and means of sharing of cultural resources. The Educational Native American Network (ENAN) was established and used to facilitate communication and collaboration between the Native American classrooms. It enabled Native American students to share aspects of their culture and to discuss common goals and challenges with their peers across the country. As part of the project, Navajo students also used the internet to collaborate with Maori students to foster cross-cultural understanding.

Africa Digital Schools [BADILIKO] project
The Africa Digital Schools (Badiliko) project was launched in six sub-Saharan African countries: Kenya, Tanzania, Uganda, Ethiopia, Ghana and Nigeria under the joint sponsorship of the British Council and Microsoft and in coordination with Ministries of Education from the respective Badiliko countries. Key to the envisioned project roll-out and implementation was a network of 80 digital Hubs (digi-Hubs) installed across the six African

countries. Each Hub was equipped with twenty terminals which served as centres of excellence that supported other schools. A network of digital ambassadors has been supporting schools and teachers in the project countries with ICT professional development and ongoing support during the 18 months long project implementation period.

The ultimate objectives of the Badiliko model were to promote ICT integration in enhancing curriculum and transforming school practices, build ICT competencies in teachers and school leaders, facilitate enabling conditions for innovative use of ICT in teaching and learning that can equip learners with the 21st Century skills they need to live, work and contribute to the development of emerging national, regional and global knowledge-based economies and societies.

In addition to improving accessing and quality in education, the Badiliko project model aimed at engaging policy makers from middle and senior levels of the Ministries of Education inclusive of ministers, permanent secretaries, directors and staff from departments of teacher development, curriculum development and adult education, heads and staff of teacher education departments from the universities and teacher education colleges, district education offices, district inspectorates, and school leaders. The focus was to sensitize and consult on the Badiliko model for school support, capacity building and outreach to schools and extended communities of the participating countries.

The LOCH project (language learning outside the classroom with Handhelds) (Ogata et al., 2008)
This project was conceived in Japan for foreign learners enrolled in the Japanese language intensive course at the University of Tokushima. Those learners were sent out in a Japanese city to find, record, and comment on certain aspects of urban life. The LOCH system uses Global Positioning System (GPS) in order that those students stay in contact with their teachers and can notify them their location. On their hand, the teachers can give specific advice related to the location.

The Micool (Mobile Intercultural Cooperative Learning) Project
Micool (www.micool.org) was a two-year project that took place from 2015-2017. Focused primarily on teachers its main aim was to provide in-service training and resources for teachers in mobile technology pedagogy and examine the ways in which innovative mobile devices, when introduced into schools, can enhance digital integration in teaching and learning. Seven partners involving two from Ireland and one each from Germany, Poland, Portugal, Switzerland and Montenegro, participated in the project. The project consortium comprised teachers working in elementary and secondary education as well as 3rd level teacher educators and trainers from different countries. The partners complemented each other with their individual expertise and teaching experience in different educational sectors, different national education systems and educational research. The project participants came together to share their expertise on the use of ICT in schools and to upskill teachers on the use of mobile technologies such as tablets to modernize teaching and learning for the C21st.

Discussion

Discussion questions: What are the benefits of using technology to bridge gaps between cultures?
 What are the challenges of using technology to bridge gaps between cultures?
 What are effective strategies for planning, conducting and evaluation of cross-cultural activities using
 technology?
 What are the factors or criteria of success?

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Appendix
Jean Gabin Bridging the gap through technology: a lack of empirical data

Our starting point is that the mobility of technologies like computer, cellphones or iPads have potential to bring people together or tear them apart because of digital convergence. Digital Convergence refers to the flow of content (video, music, text, and image) on a single digital device while their broadcast previously required separate tools such as the television (Kerneis, Coutant, Assogba, & Stenger, 2012). This means that most of human activities go through digital technologies these days. The primary mistake with talking about this phenomenon is to approach it with an instrumentalist or a deterministic point of view (Collin & Brotcorne, 2019; Ntebutse & Collin, 2018). Such approaches tend to gloss over certain issues of integration of digital technology in education, including digital equity, and tend to simplify the issues concerning elementary and high school students, labelling them as digital natives (Roy, Gareau & Poellhuber, 2018). It becomes apparent that we need new empirical data to be able to speak about the evolution of the teaching profession and the way students are learning in the digital age (Collin & Brotcorne, 2019). Of course, there are studies about digital equity. For example, we could talk about educational digital uses of allophone students from recent immigration (Collin, Saffari & Kamta, 2015), about the junior/ community college students with learning disabilities and their use of technologies (Nguyen *et al*., 2013) or about information and communication technologies for the native communities (Spry, 2017), but most of them are about effectiveness of digital technologies. In Quebec, most of the information about bridging the gap between cultures is about the issues of language and immigration.

Digital technologies have a major impact on migration trends by considerably diversifying and augmenting opportunities for mobility (Collin & Karsenti, 2012). In this sense, mastery of these tools has become an indispensable skill for immigrants who wish to integrate into the host society. As far as access goes, the results in the literature are inconsistent (*Ibid*.). Many studies report that immigrants have limited access to technologies but are less equipped than the rest of population. On the other hand, Collin & Karsenti (2012) show that other authors are saying that immigrants and ethnic minorities are better equipped technologically than the host population, notably because they use ICT to remain in contact with people from their country. Could this mean that the gap between immigrants and the host population comes from digital competence? In Quebec context, it is hard to answer this question with empirical results. Indeed, for elementary, high school and college levels, « the study of educational technologies has mainly been done in the school environment and has sought to document technological practices that can play a supporting role in teaching and learning » (Collin & Brotcorne, 2019, p. 169). The cultural dimension has been relatively little taken into account in the study of digital education, « which is probably due to the fact that the majority of digital technologies have been historically created by Western companies and studied in American school contexts » (Collin, Guichon, & Ntebutse, 2015, p. 103, translation). Daoudi (2011) puts forward the idea of developing "sustainable integration, adapted to the local context and promoting the full participation of teachers and students" (p.114, translation), which has not really been done in Quebec. As for now, it is hard to say if in education, digital technology is inclusive and fair and if it can contribute to greater inclusion and fairness. What we can say is that it is possible to use ICT for linguistic integration (Collin & Karsenti, 2012), even if past studies of this subject « have mainly focused on adults and do not address the educational integration of migrant high school

students » (Collin, Guichon & Ntebutse, 2015, p. 104, translation). Online classes allow some immigrants to learn the host country language before they arrive, and to pursue that learning once they get there. Furthermore, these classes offer greater spatiotemporal flexibility than face-to-face language classrooms, so immigrants can more easily balance work and schooling (*Ibid*.). For instance, Quebec's ministry for immigration and cultural communities (MICC) developed *Online French courses* to reach these two goals.

Barbara Sherman suggestions

Challenges

- Lack of infrastructure for connectivity of internet
- Lack of electricity
- Lack of cell phone towers
- Underdeveloped country
- Individuals access to computers
- Lack of equal access to resources in the various communities
- Knowledge base of teachers in computers, internet, and additional computer platforms
- Political decisions to support this plan in the country

Benefits

- Students from two different cultures can share problem solving
- Students from two different cultures can discover new innovative ideas and actualizing the theoretical into practical application
- The ability for students to be able to experiment with their ideas to see results
- The ability to cross economic gaps globally
- To develop new products or services due to cross-fertilization of cultures and ideas

Criteria for Success

- For teachers and/or students in both cultures to observe the students' interactions
- For the teachers and/or students to be able to document the students' creative ideas
- Visible experiments by the students
- Products developed by the students
- Essays by the students reflecting on their experiences and what it means to them.