

Technology choices to support international online collaboration

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Postgraduate business students participated in an international, fully-online collaboration pilot, focused on cultural intelligence skills needed to successfully navigate the global business world. Student projects utilized a transferrable learning design, with a changeable central case study posing challenges around (in this case) managing cross-cultural teams. This paper focuses on the learning design and choice of technologies to facilitate online collaboration. The combination of using new technology, and quickly developing relationships with counterparts from across the world, proved challenging for both staff and students. However, students quickly adapted, and strategically used the technologies to efficiently collaborate, albeit in ways different to the project leaders' expectations. Overall, the project provided an opportunity for students to network with students from other countries on real-world issues, and gain familiarity with technologies used by multi-national corporations.

Keywords: International student collaboration; online collaboration; Wikis

Introduction

Web2.0 tools have long been recognized as stable and reliable tools, and have become integral parts of the higher education sector (NMC Horizon report, 2005). And as mobile devices become more ubiquitous, the hyperbolic increase in mobile-friendly tools and apps has provided us with a plethora of choices when designing online curricula. In particular, when designing online student collaboration projects, we are no longer restricted to choices about which asynchronous technology to use, but can seamlessly integrate multiple technologies to best suit the purpose of the project and the student cohorts involved. And our choices are no longer confined to which one or two technologies we have access to at our institution, but rather, which collection of tools we will utilize for particular purposes.

Wikis as a tool for online collaboration have been well known in higher education as a stable and easy-to-use tool, yet the evidence of uptake of Wikis for student projects has been surprisingly low (Ebben et al, 2011). Literature around the use of Wikis for collaborative student work has been mostly focused on individual case studies (for examples, see Brack et al 2007; Weaver et al 2010). A more recent detailed study by Ebben, Kivatsky and Panici (2011) looked at how their students used a group wiki, and confirmed what most similar studies have found - groups tend to delegate work amongst individual members, and students used the Wiki as a facility to place their individual work. Group communication and discussion feature of the Wiki was underutilized, and little sharing of knowledge occurred. Similar results were reported by Prokofieva (2013), who found that students tended to cooperate rather than collaborate in their Wiki project, although this study did focus on a classroom setting, where students met face-to-face, and record their work on a group Wiki. Lai, Lei and Liu (2016) have raised concerns that by delegating work rather than collaborating on all aspects of their tasks, students can achieve different learning outcomes than those planned by their teachers.

Recent reports reveal that wikis are being used successfully amongst some professional groups to maintain and disseminate a body of knowledge (for example, Olver 2013), but this predominantly involves a key panel of experts modifying the content, based on contributions from feedback provided by a wider group of stakeholders. Despite only the selected group having the ability to edit the wiki pages, the inclusion of stakeholder feedback arguably meets a criteria of collaboration, but falls short of the collaborative construction of knowledge that we hope to facilitate in our student group projects.

Few detailed studies on technology-supported international collaboration seem to have been conducted, with most case studies seeming to leave the choice of communication and collaboration tools up to students, or simply providing LMS discussion boards. As detailed by Wang (2011), many factors contribute to the difficulty in developing a successful cross-cultural collaboration, including time zone and language differences, access to and familiarity with different technologies, and differences in online collaborative behaviours. McCarthy (2012) describes an international collaboration between students in Australia and USA, using facebook to post and comment on images, using only asynchronous communications, which met the needs of that project. However, with the increased ease of access and use of both synchronous and asynchronous technologies in recent years, current student collaborations can benefit from incorporating a range of tools to suit different purposes.

Case study: International student collaboration focused on cultural competencies

This paper describes a recent pilot study, trialing an international postgraduate student collaboration, between students studying their MBA programs in Australia and Brazil. The goal of the project was to provide opportunities for MBA students to develop cross-cultural competencies by partnering with similar business schools in a very different cultural environment.

The aims of the study are for the students to:

- become aware of their own cultural bias, and recognise there is not one right way to approach problems,
- understand the need to acquire knowledge from others in the group to solve a given problem,
- recognise the need to adapt their behaviour and learn from others with a different cultural background, and
- be motivated to learn more about dealing with cultural differences in their own workplace.

The collaborative project was designed around a real-world global communication need, requiring students to collaborate virtually with people from a different cultural background in real time and to jointly solve a series of management problems. Australian students were also invited to complete a Cultural Competencies questionnaire (www.CulturalQ.com), at both the start and end of the project, and were provided with their personal CQ report, as an aid to further understand their own cultural competency.

Interaction in global workplaces requires individuals to be sensitive to different cultures, capable of analysing them as they are encountered, identifying what is required of people from other cultures and engaging in appropriate interactions with them. (Earley, Ang and Tan, 2006, p.2).

The project ran over a four week period during the students' normal semesters, but work on the project was completed outside class, and usually at late or very early hours to accommodate time differences between the two countries. The pilot program was non-assessed, meaning participation in this project was completely voluntary for students – a big ask for postgraduate students who are employed in management roles (a condition of entry to the La Trobe MBA program), with the normal other commitments of family and social lives.

This project is part of a wider project, which also included evaluation of student cultural competencies and consultations with key employer groups to discuss their workplace culture. Ethics clearance for all parts of the project were obtained from the Institutional Human Research Ethics Committee. This paper focuses on the learning design and technology choice – evaluation of CQ results is ongoing and will be published separately.

Finding a partner institution

Finding a similar group of students from an institution willing to collaborate on a voluntary non-assessed project was by far the hardest part of this project. Delays in confirming funding and ethics approval meant we only had weeks to set up and conduct this pilot, and the need to conduct all collaborations in English also limited our potential network. Email invitations were sent to over 100 Universities worldwide, with several expressing interest for future collaborations but not able to participate in this pilot on such short notice. Only one institution was able to participate quickly, so we were delighted to partner with Masters students from the Instituto Superior de Administração e Economia (Higher Institute of Administration and Economy) (ISAE) in Curitiba, Brazil. In this instance we were lucky to have a native Spanish speaker conducting the partner search, which helped smooth many hurdles. Working with students from Brazil was ideal for our project purposes, with so many differences in culture between the two countries providing a valuable source of discussion.

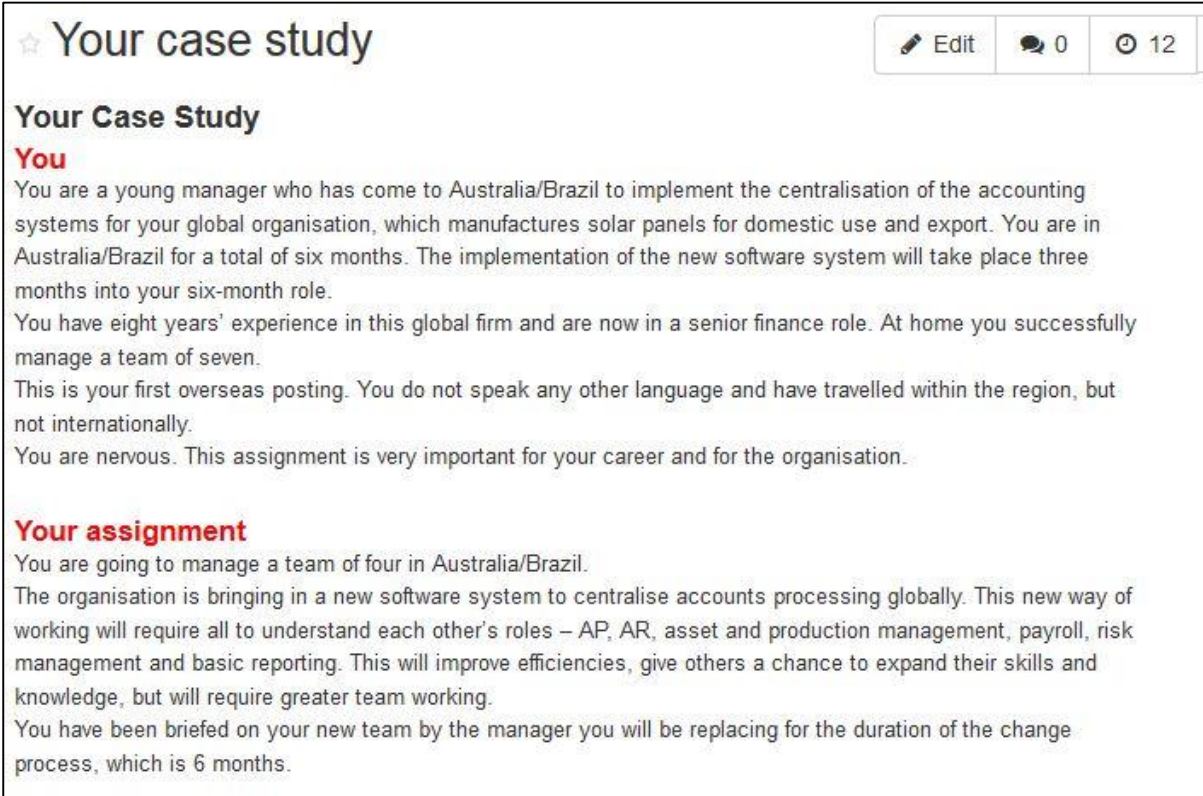
The Learning Design

We started with a consistent learning design, (see Table 1), intended to be reusable and applicable across a wide range of discipline areas. The learning design centred on a case study, which could be changed for different disciplines, countries or student cohorts. The first week of the design includes orientation activities to familiarize students (and teaching staff) with the technologies being used, and with introductions to the activities and timelines.

Table 1: Stages and tasks in the learning design

Week 1 - in home country teams	Introductions to project and technology platforms Pre-test CQ survey Online introductions to fellow students Country teams collaborate to list up to 10 things they would do to prepare for their assignment before leaving their home country.
Week 2	Country teams give feedback to other team's response on how to prepare Cross-country teams established, start work on case study questions (about meeting new team and starting work on assignment)
Weeks 3 -4	Cross-country teams continue work as case study rolls out (one month and two months after arrival, as issues within new team arise)
Week 4	Case study winds up Debrief and evaluation Post-test CQ survey

In the example discussed in this paper, the central case study revolved around a scenario of a middle-level manager being required to undertake an overseas posting and lead a team working on a critical project.



The screenshot shows a Wiki page titled "Your case study" with a star icon and a toolbar containing "Edit", "0" comments, and "12" views. The main content is titled "Your Case Study" and begins with "You" in red. The text describes a young manager's role in Australia/Brazil, their experience, and the challenges of an overseas posting. It then details the assignment to manage a team during a software system changeover.

Your Case Study

You

You are a young manager who has come to Australia/Brazil to implement the centralisation of the accounting systems for your global organisation, which manufactures solar panels for domestic use and export. You are in Australia/Brazil for a total of six months. The implementation of the new software system will take place three months into your six-month role.

You have eight years' experience in this global firm and are now in a senior finance role. At home you successfully manage a team of seven.

This is your first overseas posting. You do not speak any other language and have travelled within the region, but not internationally.

You are nervous. This assignment is very important for your career and for the organisation.

Your assignment

You are going to manage a team of four in Australia/Brazil.

The organisation is bringing in a new software system to centralise accounts processing globally. This new way of working will require all to understand each other's roles – AP, AR, asset and production management, payroll, risk management and basic reporting. This will improve efficiencies, give others a chance to expand their skills and knowledge, but will require greater team working.

You have been briefed on your new team by the manager you will be replacing for the duration of the change process, which is 6 months.

Figure 1: Case study for the pilot program (screen shot from the project Wiki)

Choice of technologies

For this project, students needed to be able to meet to discuss responses to questions, synchronously if possible, and a platform where they could collaboratively prepare their written responses. We decided on a Wiki for the collaborative platform, as it provided an easy-to-edit interface, with the facility for students to communicate asynchronously (using the comments function), and add additional pages as required. We selected Wikispaces (<http://www.wikispaces.com>) as our preferred Wiki, because it is free for educational purposes, independent of either institution, and particularly because of the advanced team functions available within the Wikispaces Projects feature. This allowed us to easily create sets of teams for different purposes, so that individual students could be members of multiple teams, and also allowed for easy changes to access to team wikis, so that we could open up team wikis to the wider cohort for review and feedback.

For synchronous communications, we chose the Zoom web-conferencing platform (<http://zoom.us/>), which was also free for students to start instant meetings, but required using licenses owned by members of the teaching staff to pre-schedule meetings. Zoom is intuitive and easy to use, and allows screen sharing of individuals' computer screens, and recording of meetings if required. Students and staff participating in the project also shared email addresses, as an added form of communication if required.

Student uptake of the project:

Students in both countries were introduced to the project by their own lecturers in their face-to-face classes, and invited to participate. This introduction was followed up with an email invitation to the Wiki. Thirty-one students signed up to the Wiki, with 19 of those then introducing themselves on the Wiki page. Eighteen of these students continued to the case study discussions, although several dropped their participation during the project. We believe about 12 students completed all stages of the project (based on Wiki participation and reports from fellow students - exact figures are not known as some students may have still been contributing to their groups' work via Zoom sessions but not leaving a footprint in the Wiki).

Twelve Australian students completed the pre-test CQ questionnaire (funding was not available to extend this to the Brazilian students), and eight of these completed the post-test CQ questionnaire.

Implementation and outcomes

For a small cohort of students working voluntarily for no credit, we were delighted with the uptake and with the overall outcomes – student teams engaged deeply with the case study, and drew eagerly on the insights from their international colleagues. However, much of the collaboration occurred in ways very differently to the original expectations of the teaching team, and many lessons were learnt to aid us in future iterations of similar projects.

An early exercise asked students to introduce themselves by uploading a photo and a brief description to a pre-formatted table in the Wiki. This was intended both as an icebreaking activity, but also to provide practice in editing the Wiki. Nineteen students contributed an introduction, as well as all members of the teaching team, and all took this seriously, providing fascinating reading, and proving successful as both a technical training exercise and an ice-breaker.

Name	Photo	Something about me...
Susan Keller 		Welcome everyone, I am the MBA Deputy Director and my background is in Information Systems. I have four children and my youngest son is getting married in Italy very soon! In my spare time, I enjoy swing dancing including the Lindy Hop and Charleston. I live in Melbourne's outer eastern suburbs and enjoy visiting the many beautiful gardens in the nearby Dandenong ranges 
Susan Inglis 		Ola! Hello! I am a Professor of Practice - Management in the La Trobe Business School and teach Leadership and Management in our MBA program. I'm currently lecturing to the Management Fundamentals class and learning a lot from the students in the class. I'm married and we have a dog (no children). However, I have five brothers and two sisters so (at last count) about 25 nieces and nephews!! When not teaching I'm in a choir, a bookclub, part of a community garden, facilitate a couple of women's circles and am in a group striving to reduce our carbon emissions called Livewell Yarra 

Figure 2: Teaching team introductions in the Wiki (with permission from the staff members featured)

The first stage of the case study involved students collaborating within their own country groups, to decide on a list of tasks they would undertake as preparation to move to the new culture. At the end of the week, these responses were shared with students from the other country for feedback, and provided some amusing and eye-opening examples of how little groups knew of each other's culture. For example, the Australian students suggested taking salsa dancing lessons before departure, as a means of helping socialization on arrival in Brazil. However, the Brazilian students pointed out that while dancing is a great socialization activity, salsa dancing is not practiced as much in their city (Curitiba) as it is in Rio or other major Brazilian cities – perhaps similar to the geographical differences of popular football codes in Australia. This task was very popular with both student groups, involving researching the destination country, and providing further interaction and relationship-building than the simple introductory ice-breaker exercise.

For the remaining stages of the case study, students worked in small cross-cultural teams, of about four to six members. We expected students to work asynchronously in their team Wikis, preparing collaborative text-based responses to the problems. Students did contribute their ideas to the Wikis, but we were surprised to find they were highly reluctant to edit each other's words, even while discussing different response to the questions posed. When asked about this, students reported that they felt it was rude or disrespectful to change another's written work, and were not comfortable with another student editing their own work, despite collaborative responses being a clearly understood as a requirement of the project. Even when we strongly encouraged this, and demonstrated how easily students could view who had made which edits, they preferred to add their own suggestions in a different coloured text below the original contribution, or simply to add their individual contributions as a comment to the page, thus using the Wiki more as a discussion forum than a shared collaborative document.

On the other hand, we had originally thought students would use Zoom only for an initial meeting, to get to know each other and build relationships within their teams, and then communicate asynchronously via the Wiki as they prepared their shared responses, thinking the asynchronous mode would be more useful. Instead, once students became more familiar with Zoom, teams preferred to meet regularly via this synchronous technology, discuss their responses verbally while one student recorded their outcomes, and then post their agreed response to the Wiki later on. This effectively circumvented the need to edit a peer's contributions on the wiki page, yet still meant that students collaborated efficiently on a shared response – even though the collaboration itself was largely hidden from the view of the teaching staff (unless we participated in the Zoom meetings).

Unavoidable differences in semester teaching dates meant that the Australian students started the project a week before their Brazilian counterparts, and quickly progressed through the relationship-building stages (at least, with their fellow Australian students). When the Brazilian students started, they seemed very excited to join in, and were posting very friendly messages, which were largely unanswered by the Australian students, who were noticeably task-focused by that stage. This was particularly apparent in the first activity around preparation for departure – most Brazilian students gave feedback on the Australian students' list, but only one Australian student commented on the suggestions proposed by the Brazilian students. This was disappointing, especially

since all student teams identified relationship-building as a key component of working with their new teams in their responses to the case study questions.

The case study was originally designed to apply in a two-way direction, i.e. to apply to Australians moving to a new position in Brazil, as well as Brazilians moving to a new position in Australia. However, again likely due to the Australian students starting work on this before their Brazilian colleagues became active, it was tackled by the student teams only as a one-way scenario of Australians moving to Brazil. Australian students took the lead by preparing suggested responses to the case study questions, and the Brazilian students then provided feedback triggering some quality dialogue between students. For future iterations, if this situation recurs, we intend to prompt the teams to consider the reverse situation, and discuss whether their responses still applied.

Dealing with the differences in time zones posed some challenges for scheduling team meetings, so including links to time zone converters in all wiki pages and reiterating times in the local zones in email communications was helpful. However, we neglected to take into account the changes from standard time to summer time in Australia, and the corresponding end to summer time in Brazil which occurred one week later, so most student teams had to reschedule at least one missed Zoom meeting due to confusion around agreed times.

On completion of the case study, all students who participated were invited to both complete an online feedback survey, and to participate in a combined Zoom session to debrief on the project and provide feedback for future improvements. Survey responses were low (only 6 responses – three from Australia and three from Brazil), and reiterated what we already had picked up:

- Students' motivations to participate were primarily to interact and learn from peers from a different culture. (e.g. *I enjoy meeting people from different cultures and enjoy the exchange of cultural knowledge*”).
- They enjoyed the interaction around the case study (e.g. *Seeing the way in which people with different backgrounds applied cultural stereotypes*”).
- The key issue identified was associated with different (and changing) time zones.
- Few suggestions for improvements were made, and these were mostly about increasing familiarity with the technologies (e.g. *have a trial project using the communication tools before going cross countries*”).

We struggled to find a convenient time slot for a combined post-project Zoom session, but managed a session with five students and five teaching staff (with representatives of both country groups). While discussion questions had been prepared prior, this session ended up as a mostly informal debrief on what worked and what could be improved. The overall design, duration and the specific case study were popular with both staff and students. Areas identified for improvement were generally around the more practical aspects of the project – trying to ensure groups all started the project together, dealing with time zone issues, and providing improved access to Zoom (students did not have access to licenses, so required staff members to host team meetings). Discussion also centred around using this project for a possible future assessment activity.



Figure 3: Screenshot of a live Zoom session (included with permission of all session participants)

Discussion

For a pilot study involving no assessment or credit for students, we were delighted with the uptake and participation by students in both countries. The learning design (centred around a changeable case study) seemed to work well for our purposes, and is currently being trialed in a different discipline (Accounting), using a different case study. The actual case study used in this project also seemed to work well for our purposes – students were engaged with the scenario and with the challenges that it posed, and the questions provoked valuable discussion on the difficulties for managers working across different cultures.

While our choice of technologies to use (Wikis and webconferencing) proved successful for the original purposes of the project, the way that students used these technologies was different to our (perhaps naïve) assumptions. Students preferred to discuss and negotiate their shared response synchronously, and then record that agreed answer, rather than edit work posted by individual group members (or allow other members to edit their own work), missing one of the touted benefits of Wikis:

A major benefit of wikis was that they allowed students to structure their collaborative writing in a flexible way, which encouraged creativity. The experience of working in a wiki also encouraged students to consider issues such as individual versus shared authorship, and permanence versus ephemerality of the text. (Kear, 2011, p.80).

These results are very similar to those reported by Zorko (2009), who noted that students preferred to collaborate in live meetings. However, if students are negotiating shared responses via synchronous web-conferencing tools, this is still a form of shared authorship, albeit one not immediately visible to the teaching team.

...given the multiple ways in which most technologies can be used, we might also consider giving students more freedom of choice about how and when to use a new technology beyond the requirement that they use it. ...In essence, a good approach may be to require a collaborated project and allow students to determine the best technology to use in the completion of that project. (Ebben et al, 2012, p.182).

Admittedly, this study involved a small group of self-selected and committed students. However, we do believe that the learning outcomes for the project (for students to gain insight into their own cultural bias and to learn more about dealing with cultural differences in the workplace) were achieved by the interactions between the different student groups engaging with the case study. Further evaluation of the cultural intelligence survey results is ongoing, and will be published separately.

The form of collaboration achieved in this project met our original project goals, although not in the form that we expected. Accordingly, our teaching team response was that the academic learning outcome of the project was paramount, and our ability to view student collaborations, while of great interest to us as teachers and learning designers, was not essential for the success of the project for students. This stance is likely to be different for those teaching undergraduate subjects, where developing teamwork skills may in itself be one of the desired learning outcomes, and thus the ability to give feedback on individuals' skills requires greater visibility of those skills in action.

Recommendations for educational practice

The following recommendations may be useful for others planning similar collaborative online projects:

- Schedule projects so that all student groups can start at the same time (not always possible for cross-country collaborations).
- Be aware of time zone differences, including any changes for summer time zones.
- Provide a range of technologies for student groups to use – both communication and shared writing technologies, ensuring that technologies are mobile friendly.
- Allow student groups the freedom to decide how they collaborate – as long as collaboration does take place and all students have equal opportunity to participate, the platform used should be irrelevant.
- Include an ice-breaker activity around cultural differences which requires interaction (rather than simply posting an introduction), to encourage relationship-building between the different international groups.

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