

# TECHNOLOGY IN PEDAGOGY

## Series



## Collaborative Learning using Google Docs & Maps: By Chris McMorran,

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“I don’t work for Google; I make Google work for me”, says Dr Chris McMorran, a Lecturer in the Department of Japanese Studies. Research indicates that when students work collaboratively in small groups, they learn more, retain more and are generally more satisfied with the experience. If used in an educational setting, collaborative technology can enhance active participation (through content creation), increase students' engagement with course content, and enrich the learning process. Having used Google tools for several years, Dr McMorran discussed how he employed new ways of using the tools. In particular, he highlighted two Google tools he used to encourage collaborative learning both inside and outside the classroom – Google Docs and Google Maps. He then demonstrated how the two tools enabled his students to work together and build shared sets of knowledge. The talk was divided into three sections:

- Collaboration - why is it important?
- Collaboration using Google: What are its uses?
- How can these (or other) tools for collaboration help fulfill the goals of the flipped classroom?

### Pedagogical advantages that collaborative activities offer

Dr McMorran felt that it is important to allocate time to design collaboration opportunities both inside and outside the classroom. He felt these activities:

- **Encourage peer-instruction** (Mazur 1997; cf. Cain 2012): It is fairly clear that the person who learns the most is the content creator, and the one who teaches others. It is said, nothing clarifies ideas in one’s mind so much as explaining them to other people. Therefore he tries to turn this to his students’ advantage by assigning them with opportunities to teach each other. Through the act of putting ideas into their own words, students make it their “own” and ultimately learn better than just being on the receiving end.
- **Build a learning community:** Even if students are assigned to arbitrary groups, by the end of 13 weeks they feel closeness to the group. The activities designed and the collaborative nature of the tools enables them to form a sense of belonging to the class as a whole.
- **Give students a sense of their learning level:** Students are often not quite clear on where they stand in reference to their classmates’ levels of understanding even after the mid-term. When students participate in such collaborative activities they tend to identify their strengths, their

shortcomings, and what needs to be improved. More importantly they are able to identify classmates to whom they can turn for help or offer their support to peers in need.

- **Allow efficient time management:** Students have the flexibility to work at a time that best works for them without having to bother their fellow classmates, and also have convenience of working at their own pace.

### **Reasons for using Google tools for collaboration**

In a large class setting, he would allow students to use collaboration tools of their own preference. However, in this session, the focus was on tools that he got his students to use to encourage collaboration and also be able to better understand the students' learning process.

Listed below are some reasons for choosing Google tools for collaborative activities he designed:

- **Control edit settings:** The teacher can control the access level (edit, comment, view) given to students.
- **Allow simultaneous work:** Students can see who else is editing the documents at the same time. The changes are immediately updated on the document and changes made by individual students are differentiated by different colored text on the documents.
- **Chat with other students:** Students can see who is working on the documents and can 'chat' with each other, to indicate for example that the student is working on para 3. This allows better control when working on documents.
- **Save changes and retrieve past versions:** Google keep tracks of the changes and saves a history of the different versions. If anyone deletes part or all of a document, students can revert to previous versions. The best part is that students don't have to pass Word documents around and guess who has the latest version. In Google, the updated version is always on the screen.
- **Offer clear online tutorials and help sections:** This allows students to easily clarify issues and problems rather than relying on the teacher to seek technical help.

Google tools can be easily used even without having an exclusive Google account. Students can start participating in the collaborative activities designed using Google tools with a Yahoo account, Live.com account or Hotmail account. However, with a Google account, it is also possible to use the full suite of Google applications from the Google Drive, where one can create presentations, spreadsheets, documents etc., something similar to MS Office applications. It also has the extra function, the Share function which allows for sharing of the documents to anyone around the globe with a simple share link. Incidentally, if you want students to collaborate with the entire class or tutorial group, it would be a good idea to collect their email addresses (non-NUS emails) in one master document at the start of the semester to ease future invitations.

## Examples of collaborative activities using Google tools

Google tools allow students to collaborate online either synchronously or asynchronously and to discuss problems, share ideas, reflect and review, making it an excellent tool for collaborating across continents. Dr McMorrان featured three activities that he designed using the Google tools: collaborative translations, shared timelines, and group maps.

### 1. Collaborative translation

#### The Problem:

Dr McMorrان takes his students on field study trip to Japan as part of the module. Usually, he would have collected a number of leaflets/documents from local governments from earlier trips he has made. He wanted to use the resources available to:

- introduce a site (e.g., Isahaya Bay) to his students for which very little academic writing was available
- expose his students to government documents and/or propaganda
- introduce specialized vocabulary
- take advantage of a range of language abilities that his students have

It was immediately clear to him that it would be good to share those materials with his students before they make the trip to Japan. This would then give students a better understanding and allow them to know more about the background of the place they are visiting and make efforts to learn the specialized language, etc.

#### The solution:

Dr McMorrان uploaded the scanned documents of the brochures to IVLE and assigned each page of the document to individual students to translate. He then setup a Google document where students put in their translations on the different pages. Each student created a table and translated the lines in the page.

Page 5 - top half - Perlyn

干拓地での営農は、すでに始まっています	Farming on reclaimed land has already begun.
諫早干拓地では、調整池を水源とする農業用水を利用し、大区域で平坦な優良農地を活かした日本の農業をリードするモデル的な農業が始まっています。	At the Isahaya Bay land reclamation site, water from reservoirs is used for irrigation and a leading model of agriculture in Japan utilizing large plots of flat and fertile land is beginning.
平成20年4月から干拓地では、すでに41の農業者が大規模な農業を開始しています。	Since April 2008, 41 farmers have already begun large-scale farming on the reclaimed land.
41の農業者は全てがエコファーマーに確定され、土作りや減農薬・減化学肥料による環境保全型農業を展開しています。	All 41 farmers have been validated as "eco-farmers" and are utilizing environmentally conservative farming practices which include "creating soil" (plowing/tilling/cultivating the land?) and using reduced amounts of chemical fertilizers and pesticides.
平成20・21年度の延べ作付面積は干拓農地面積の2倍以上となっています。	Between 2008-2009, the total land area used for farming was more than 2 times the size of the reclaimed farmland.

The benefits:

Students were better prepared for the study trip as they learned the names of places, vocabulary, and styles of government documents. As each student worked on single page, the workload was shared and balanced. Students also took the initiative to add more information and/or issues regarding the item. However, the final product created by his students was not as colorful or engaging as original.

Students also explored other translation tools apart from the suggested tool and shared those with their peers. Though peer sharing was taking place, Dr McMorrان felt that peer learning / peer-editing could have been better if students took the time and effort to read what their peers had written and add in their suggestions and comments.

**2. Shared Timeline**

The Problem:

In this class, the module title was “Japan – the green nation?” The topic was the long history of the nuclear industry of Japan – its emergence following the atomic bombings of Japan during World War II, the current situation where all the nuclear reactors have been shut down after the tsunami in 2011, the new rigorous standards which would allow for some nuclear reactors that pass the standards to be restarted.

A variety of 4 to 5 readings were assigned to students. However, there was no single timeline that helped students understand the long trajectory – how public perception changed, how the industries changed, how the government changed over the decades.

The solution:

Dr McMorrان could have easily created the timeline for his students. However, he realised the importance of engaging students to collaborate for creating the timeline. He assigned a group of readings to all students, created a Doc template and shared it with his students. He also assigned activities to student groups of 5, with each group working on a period that he had created by breaking the postwar era time. Students had the flexibility to work out among themselves how to split the workload for each period. Students were given a reading goal, which allowed them to look for specific information and not just a general overview of the period they were working on.

Group 1:  
1940-1969: Anna, Cecilia, Mus, Raphael, Yanning

Date	Event	Actions or perspectives of the State	Actions or perspectives of industry	Actions or perspectives of citizens	State of the world (major events elsewhere, just to give some global perspective)
1945	Hiroshima & Nagasaki Atomic Bombs	Surrender to the Allied Forces, end of the Pacific War	No industry to speak of	Becomes the first (and only) peoples to experience the effects of an atomic bombing	Tail end of World War II
1954	Lucky Dragon 5	Agreement between Japanese/US govts to share nuclear tech  Desire to push nuclear power as the way forward	Started building infrastructure to support nuclear power generation	Widespread panic over food safety  National discussion on the effects of radiation	Beginnings of the Cold War. U.S. officials announce that a hydrogen bomb test (Castle Bravo) has been conducted on Bikini Atoll in the Pacific Ocean.  McCarthyism is at its peak.

### The benefits:

With the creation of a shared timeline, students got a broad sense of the different aspects that they needed to consider (e.g., shifts in policy, citizen reactions, and industry perspectives). Students were forced to do the readings in order to develop the timeline while also taking responsibility to share the workload. Only a general class participation grade was awarded for this exercise. Though this activity was not graded, students contributed well to the timeline and had a good learning experience. It can be easily converted to a graded exercise as the revision history would give a clear indication of what changes were made by whom.

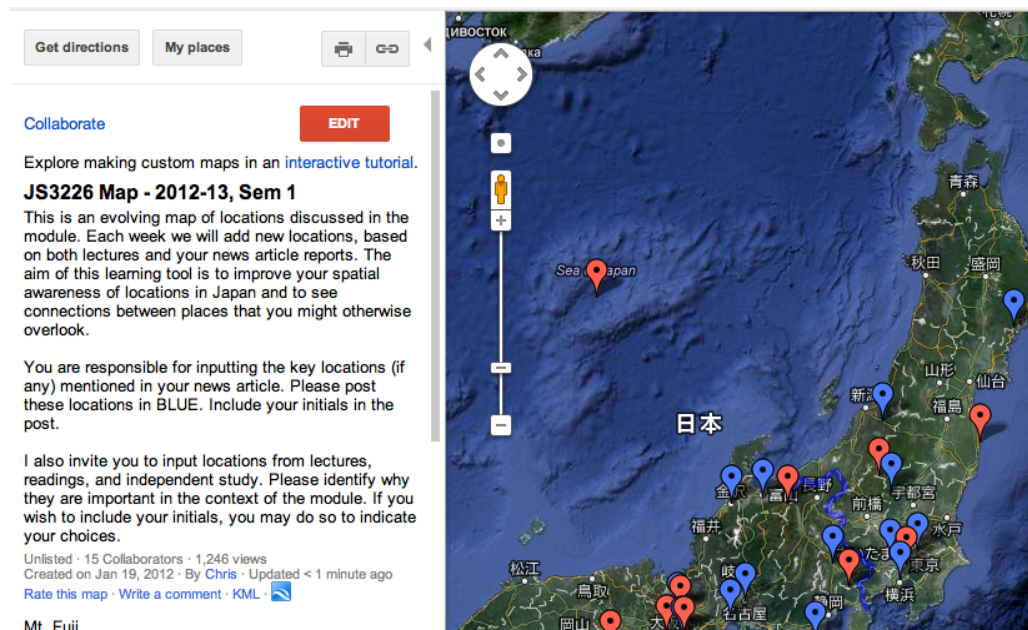
### 3. Group Map

#### The Problem:

Having to teach Geography for students from the Department of Japanese Studies, very often the students in his course rarely think spatially, says Dr McMorran. Students can think relatively over time but rarely can associate it with where it takes place in a spatially nuanced way, and seem to have very little knowledge of the geography of Japan – what it looks like, what it feels like, where certain things took place and why the location was important.

#### The solution:

The class on “Japan – the green nation?” had one student assigned to bring in “Green News” each week – news on something related to Japan, its eco-friendliness, and its green-ness. The student would present a summary in class as to why that chosen location is important. While summarizing they place a dot on the Google map (that is shared with the class) on the exact location along with the news summary. This activity allows students to have a better understanding of the relationship that each location has with other important locations in Japan, such as Tokyo to the hinterlands.



Dr McMorrان also uses the Google Maps in his other course which has a large class size (450 students). He created a map with all the points along with a short summary, as seen at <http://goo.gl/maps/JaOma>. He adds in the point on the map every time a location is discussed in the lecture, thus creating a dynamic looking map. He then uses these maps in his assessments re-iterating the points covered in class. Using the Google maps and Google Earth help students learn about specific locations and see what they look like from an aerial view and study satellite images superimposed on the maps.

#### The benefits:

Students became more familiar with Japan's geography and gave more credit to the spatial aspects of problems. One of the things he was happy about was that one student took this exercise a step further by adding a line rather a point – a line that separates Japan's two electrical grids, and explained to the class on why it came about, why that was useful and so on. Thus, it is a powerful tool that empowers students to collaborate, visualize, share, and communicate information about Japan.

#### **Some Drawbacks of using Google Tools**

- These tools are not integrated into the NUS site
- No assurance of privacy
- There is a possibility that the Google site could crash, and the document could evaporate
- Students must be online to access materials
- It cannot be used with add-ons like EndNote

#### **Summary of Feedback/ Suggestions from the Discussion**

One participant suggested that instead of tracking down the emails and inviting students through email, it would be a better idea to share the link of the Map with students. However, it was also noted that then the entries made on the Maps would not be associated with specific users and be marked generally as unknown user. Another participant indicated how the Google Docs was helpful in scheduling of presentations for group work, where students easily formed groups using Google spreadsheets. The discussion also explored on how Google docs or other tools for collaboration help fulfill the goals of the flipped classroom.

#### **Q & A Session**

Following the presentation by Dr McMorrان, a lively discussion ensued and listed below are some questions from the subsequent Q & A session.

**Q: Can you track who made changes when students collaborate on a Google document?**

**CM:** Yes. You can see who edits or make changes when you are the editor or owner. Changes by students are highlighted by different colors so you can see at one glance who has made more changes.

**Q:** At the end of the day, do you get like a report of the statistics of the changes made by students?

**CM:** Yes. But I have not really used that.

**Q:** Can the Google Maps be duplicated?

**CM:** Yes, the maps can be copied and reused. I put in the points each week on the Google Maps, and students go back to it each time, so they can see it emerging. Historically this is important, since we start in a very narrow band in Japan, and this expands as time passes. Thus students are easily able to understand how the civilization keeps growing and how eventually it encompasses the Japanese empire.

**Q:** Is there a notification feature when new points are added?

**CM:** As far as I know, I don't see an alert feature. However, each time I add in a new point, I update students by sending in an IVLE announcement.

**Q:** If two student groups are discussing the same topic but I would like each group to work individually, how would you do it?

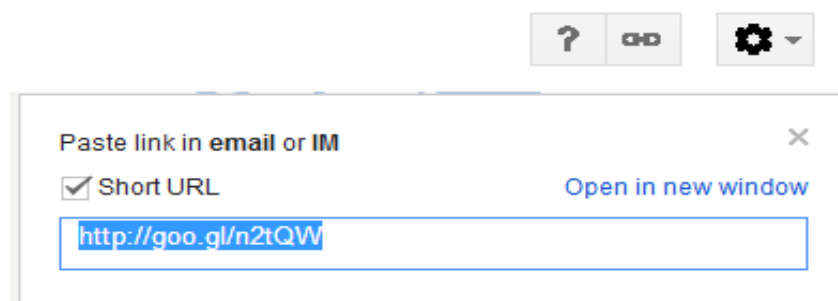
**CM:** You would need to start with two documents – one each for each group. You can then share the link to each group and get them to work from there.

**Q:** Do you think it will work well in large classes, when I get students to collaborate on a single document?

**CM:** It is very good for small groups and unwieldy for large groups. However, I guess when you work with tutorial groups instead of the entire class it would be more feasible.

**Q:** Can you make the link shorter?

**CM:** Yes, the links can be made shorter. Using the Edit function, you can find the link, and there is an option for short URL.



**Q:** You have tried both on small classes and large classes. What are some of the considerations, differences or challenges, particularly in the context of MOOCs or flipped classrooms?

**CM:** I think that these kind of documents will work very well for the MOOCs. However, I would encourage students to do it on their own. You could split the lecture theatre into different sections and get each group to work on the same question separately. This allows collaboration on different documents but on the same question, which can allow for comparison between what different groups have come up with. However, there is the risk of students deleting others' work or document which seems to be the biggest challenge, but for smaller classes/groups, there will be a better control.

### **References**

Cain, S. (2012). *Quiet: the power of introverts in a world that can't stop speaking*. Thorndike, Me., Center Point Pub.

Mazur, E. (1997). *Peer instruction: a user's manual*. Upper Saddle River, N.J., Prentice Hall.