Google Apps for Education in Special Programme in Science

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EXTENDED ABSTRACT

Background

The Special Programme in Science (SPS) was established in 1996 as the NUS Faculty of Science’s talent development programme to nurture aspirant scientists toward the growing research and development (R&D) demands of a 21st-century knowledge-based economy. There are 2 main aspects of the programme: (1) exposure toward research excellence at the early stage of students’ undergraduate education, and (2) exposure to multidisciplinary science. Indeed, SPS students come from various departments in the faculty. A small dedicated group of academic staff collaborate with the student mentors, which comprises of senior undergraduates (3rd-year and 4th-year/honours) and postgraduates students, to design and execute SPS’s Integrated Science Curriculum (Dewanto et al., 2012). Teaching and learning in SPS is mostly undertaken through active learning, hands-on projects, and peer mentorship; senior students, having gone through the SPS curriculum themselves, are contributing their expertise and experience to guide the junior students.

In this dynamic learning environment, the programme requires a robust system, among other things, capable of:

1. **Administering a communication channel between various stakeholders of SPS**, namely students, mentors, staff and even alumni, as many of the SPS alumni are doing their postgraduate studies or post-docs, and the programme is in need of their support as experienced mentors or their network as faculty members in various academic institutes around the world. This channel also serves as a centralized means of disseminating information to the SPS community.

2. **Supporting collaborative work between students**. SPS students are working on various research projects in groups. They have to be able to find a common time, meet for discussions, collaborate on the report, etc amidst their diverse timetables.

3. **Keeping record**. This means the system should be able to keep track of various activities that are happening in the programme and, if necessary, remind the relevant people of the upcoming event. Moreover, the system also serves to keep students’ portfolio.

While at the same time, the system should also be cost-efficient and straightforward to maintain by amateur system administrators (done by SPS students on part-time basis).

Google Apps for Education

Previously, the programme was privileged to maintain its own UNIX server and E-mail system since its establishment. Over the years, the task of maintaining and patching various security loopholes was getting more and more challenging as both the hardware and software went obsolete. For that matter,
in 2009 the programme turned to Google Apps for Education (www.google.com/enterprise/apps/education/) to replace its old system.

Avid Google users would have been familiar with various Google Apps, such as Gmail, Google Calendar, and Google Documents. Normally, to access these tools, one needs to setup a Google account, which will look something like “user_name@gmail.com”. Google Apps for Education allows its subscriber to set up an account which reflects one’s affiliation to a particular educational institute (e.g. andreas.dewanto@sps.nus.edu.sg) in order to gain access and utilize these Apps. SPS students thus use Gmail and Gchat as their means of online communication. Google Calendar serves as an organizing tool and helps in seeking and managing common timetable for tutorial, group discussions, etc (Figure 1). Google Form and Google Spreadsheet are the most widely used by the students to create surveys and tabulate the outcomes both for academic and informal activities in SPS. Finally, Google Site provides a content management site for SPS students to create webpages as part of the continual assessment for the module SP3175 “The Earth” (Figure 2).

Google Calendar is used to organize SPS events. It can be incorporated into each student's personal calendar and collaborated with other students' calendar. Students can then see one another's timetable and seek a common slot for group discussion.
Google Apps and IVLE

The authors believe that Google Apps complements the Integrated Virtual Learning Environment (IVLE), which is NUS’ learning management system in teaching and learning at SPS. Many of the students that come to the programme are already familiar with the various Google apps. In fact, they might have already had vast experience dealing with the apps (for instance, they may have been using Gmail as their personal email account all along). It does not take long for them to adapt the apps for collaborative learning. On the other hand, it takes some time for them to get used to the IVLE layout (which they would only experience when they were matriculated to NUS), let alone to fully realize and utilize various IVLE capabilities.

Furthermore, the Google account that is created for each student when they join SPS stays with the student after he or she graduates from NUS. After the initial installation, Google Apps for Education comes free and Google does the main job of maintaining the server and making sure of its security. Hence, we do not see any need to revoke the account to make hard disk space for new students. Neither will we face the problem with the technology going obsolete. At the same time, individual student is able to customize the account to their preferred setting. This encourages students to keep the account after they leave the programme. In fact, they often integrate their GMail to their other personal email accounts (e.g. Yahoo, Hotmail, MSN, etc). This conveniently provides a way to reach out to the alumni for upcoming SPS events. And because students keep the account, they are able to carry the tools into their workplace or postgraduate study. An ex-SPS student recently shared with the author (Dewanto) how she is using Google Apps, a skill that she picked up in SPS, in her work now. On the other hand, students will no longer have access to IVLE once he or she leaves NUS.

Nonetheless, students will need to keep in mind that Google still owns and maintains the server after all. Thus it unavoidably has access to the information that students are exchanging via the apps. Although at the moment, we have yet to experience any issue with Google breaking the legal conduct and leaking information, we still strictly adhere to the university’s data management policy with regards to the classified information.
References


3. The page can be accessed at [https://sites.google.com/a/sps.nus.edu.sg/the_earth/](https://sites.google.com/a/sps.nus.edu.sg/the_earth/)