Beyond Blended –

A co-ed hybrid AP Statistics course, between three schools.

St George's School (750 boys gr 8-12)

Crofton House School (400 girls gr 8-12)

York House School (350 girls gr 8-12) VANCOUVER, BC, CANADA

Overview:

Nov 2014, All 3 HMs were at a CAIS Heads conference, and the possbility was floated. Historically, whilst we were geographically close, there had not been very much liaison at all, other than some co-ed games (Ultimate, Tennis) and theatre productions.

We are all within 3 km of each other, and many of our families have both sons & daughters, who attend these schools. CHS and YHS are both around half the size of SGS, so collectively, we have roughly equal numbers of boys and girls.

The intent was to leverage expertise so that at least one of the schools could offer a course that they currently do not offer. The delivery was intended to create a co-ed course which yielded at least the same academic results as previously, in the schools it already exists in, whilst providing a real co-ed academic program.

I think the HMs thought that AP Psychology was the suggested course, but when I heard about it, from my own HM, I thought that something in Math would be excellent. Literally, the same week, CHS head floated the idea to Phil. We both had this idea floated not as Heads of Math, but rather, we are both involved in strategic planning to some degree.

Phil, Marianne and I have known each other for several years, professionally, and have met often through the ISABC Math HoD's meetings. We are close schools, so we three knew each other better than other HoDS, in any case, but had not worked together like this, in any manner… just attended the same meetings etc…

I emailed Phil about the 'rumour', which he had also heard, so on the last day of term, Xmas 2014, we met for a drink and a chat to see how we both felt. We both liked it in principle, and felt that AP Statistics was the right course… Calculus was not feasible, being so technical and precise, nor do the schools 'need' it since we all offer that course… We felt that we could persuade Marianne to take this on also, YHS did not currently offer Stats; we all respect each other and have faith in our professionalism and ability; but would we have the autonomy to figure this out ourselves? Would we have carte blanche (within reason) to design and schedule the course? How much scope could there be to make this something truly innovative??? So in January 2015, we started discussing what this might actually look like…

Our own intent was to focus on developing the following: differentiating it from a regular course by

Experiential learning
Foster greater awareness of real-world applicability
To enable flexible, self-directed study (paced)
Learn from a variety of teachers
Better visualise and understand the concepts through simulations and animations
On-Line learning, and contribution to on-line forums and discussions
Greater emphasis on projects and communication
Greater emphasis on team-work; including the responsibility of being a good team-member
Collaborative Learning

Pre-Planning

Between January and June 2015, we three met several times, for six half-days.

First to discuss and define our concerns, then to meet with the schools' admin teams to raise them and gain the support of the admin teams. Once this was clarified, that we had autonomy, we were good to go; planning. To deliver a nominally 100-hour face to face course, in 52 hours; front-loaded, and only one contact class per week, in our own schools, in addition to the bi-weekly en masse experiential session- which was to be the real 'heart' of the program, the group co-ed classes leveraging that opportunity for collaboration, communication, discussion, presentation skills and group projects, learning to work together on academic topics, learning to support each other, and work as a group to develop strong understanding in each other.

Big Questions:

How often to meet en masse, and for how long?

When that would be?

What if that presents a conflict for certain programming?

What do regular class-sessions look like?

Are we OK to simply have them not attend, or do we need real actual attendance?

Do each of the three schools have the physical space and facilities to host such a program?

What about campus security in the evenings?

How would we 'host' the digital content?

Do we offer it just to grade 12s (Seniors) or to Grade 11s too… we wanted it to work, and were 'open' to this, in order to gain the numbers…but decided on Gr 12s only.

Phil at CHS had run the course once (very successfully) as a discussion-based format

Marianne and YHS had not offered the course previously.

I had taught it 3 times in SGS, and something similar 12 times in England, and knew the scope of the course, the hard concepts, and where we could possibly leverage experiential learning / hands-on activities to make concrete those principles. I was the defacto course expert, and they relied on me to figure out where we needed to slow down on the course, and where we could find that time by speeding up in places.

Phil and I discussed what kind of activities might be powerful in shore-ing up their understanding.

Once we had some key pieces there, we reverse-engineered the pacing of the course, working backwards from the AP exam date, concluding we had 14 2-hour sessions; we then literally, planned the whole course, week by week, over the several 3-hour collaboration sessions.

We also discussed, based on my knowledge, where I felt there were gaps in the text, and where extra supporting material could be produced, via You-Tube, Camtasia or LaTeX extra documents, which then became my summer tasks

Once we had it fleshed out, we then felt confident to figure out how to describe or promote it for the Course Catalogue

Phil's background with IT, Tech Integration and Moodle meant that CHS hosted the site (due to Moodle log-in open-ness as opposed to our own). Phil would build the site and resources, and Marianne, who had not yet done the course, would be in charge of assessment and evaluation.

The final piece was for the three of us to attend an AP conference on AP Statistics, led by the lead author of our preferred textbook. " The Practice of Statistics 5th edition – Starnes".

We discussed our plan, and he was very impressed with our ambition, but perhaps a little skeptical about delivering AP Stats in 52 hours. He was very willing to encourage us to build a course around the AP questions themselves- and was happy to suggest really good AP FRQ questions, that would address several topics and principles at the same time.

SO, after Summer, and one more collaboration meeting, we were ready to launch the course.

In total, we had invested in the order of 25 hours each, collaboration and planning; a 3-day 9-hour day AP seminar course, and then something in the order of 40 hours of our own time, building supporting documentation, videos, Moodle, site design, pre-reading the whole course, preparing for delivery in September 2015.

Here is a summary of what we presented to faculty at the end of our first term, last year

The students have one regular class per week (occasionally two). They are expected to pre-read material and work through examples, so they are ready to apply that understanding to deeper more challenging questions in class. Of course, some of this time can be used to reinforce concepts, but overall, the students have done well, learning from the text, examples, animations and on-line quizzes. They are also expected to contribute to discussion groups dealing with specific questions.

The real ‘heart’ of the program is the evening sessions, held every two weeks on average, from 4pm-6pm on a Wednesday. We have met six times thus far:

There are basically three main focuses to the evening sessions:

Some teaching and summarising the key principles currently being examined (usually me),

Harkness –style discussions in groups of 12, collectively, collaboratively working through full, complex AP Free response questions. – the three of us have been astounded and astonished at just how capable the students are; how good they are at supporting each other and getting each other involved in these discussion, but also their collective ‘solutions’ to the AP questions generally far, far exceed the expectations of the scoring guidelines from Collegeboard.

Experiential activities, usually in smaller groups, be these simulations, data collection and analysis, and working on projects. Indeed, even at 6:00pm the students want to stay together and work further on their planning for the next project and presentation. Many meet up several times over the two weeks in coffee bars or wherever, lots of chatter between them on social media.

Right from the first evening session, the three of us were so impressed by the tremendous energy and enthusiasm of the group during these evening sessions and the caliber of the discussions and depth of understanding; and it has not diminished at all. We were all exhausted, but incredibly inspired by how well the students participate and contribute to these evening sessions.

Indeed, following the latest project (last week) we asked for feedback : there was unanimous agreement, that everyone felt they really were learning a lot, be it about the usefulness and power of statistics, the necessary leaps forward they have had to make with software such as Google docs and excel, but above all, the growth that has occurred with regards to working together, supporting each other and collaborating.

At the end of the year, most of the 34 students did write the AP exam.

The average grade of the students on the AP was 4.6, totally in-line with what we would have expected from a regular classroom-based course.

THIS year we now have 24 boys and 24 girls 48 in total. We believe this is the largest we can deal with without requiring extra resources or extra classroom assistance.

Once again, the students are engaged, excited, and already tackling full AP-level questions, and collectively easily exceeding the scoring guidelines for a complete solution.

TEACHER BENEFITS:

Energising for all of us to tackle a new project. CAIS had strongly expressed interest in this, saying it was truly innovative in Canada, and wanted it to be successful. We were all invested in making it the best it could be.

All attended the incredibly useful AP Pro-D on it. Here again, meeting teachers from across USA.

Promotes the teachers' own growth, tackling new topics, and using their skill-base to extend their competencies on various aspects (website design, \LaTeX , Camtasia videos etc)

Best Pro- D we three have done, harbouring massive professional growth, cross-campus links, mutual trust, appreciating other styles of teaching. This has totally opened the door for greater collaboration and 'trust' – the schools are now considering promoting and supporting a second blended program TBD

STUDENT BENEFITS:

The AP results of our students this last year were basically the same as in previous years, for those that have run it previously, around 4.5 or 4.6. Marianne's class actually was 4.7 for her first year of teaching this course. We would like to think that the blended format certainly helped generate such excellent results for their first iteration

Focus on discussion skills with 'partners' that are not their trusted classmates has led to higher levels of precision and thoughtfulness in the student answers – lifted the bar.

Learning to work with partners who are not their trusted colleagues, from other schools, leads to learning to overcome differences in approaches to project work, learning to schedule and collaborate more professionally and in a more organized manner.

We carried out a short 'survey' just before Xmas of 2015, at the end of the first term.

And the student survey wordle showed:

Ongoing Challenges:

At the end of the first year, it transpired that several of the students did not know the names of several others in the group. We need to make more effort to ensure that names are used deliberately and often, so that everyone can get to know everyone else, more quickly.

It took a long time for the boys and girls to really 'mix'. Without direct instruction to sit with people from other schools, it still looked like a Barn Dance… all the boys on one side, all the girls on the other side. We as teachers, need to make a more purposeful effort to ensure they mix.

It is a demanding course-load and fast pace, and we are all busy schools. I think the one regular class-session per week is not sufficient, especially if there is an assessment that week. I feel we need to properly 'teach' our own class; so in a week where there is a full assessment, we should also schedule a second class.

With regards to assessment, as the course progressed, we started assigning paired-evaluations or paired-assessments for the 'long answer' responses. These were originally as pairs in our own schools, but eventually we ran a couple of paired-assessment sessions across the groups. The students were a little hesitant at first, but they soon realised that "two heads are better than one", and that students from different schools offered a somewhat different perspective or opinion. We shall definitely aim to repeat this, this year.

Whilst the students became really good, really quickly at mastering the long-answer questions on the AP –level questions, their performance on the multi-choice questions were worrisome, early on - when marks matter most (for student applying to the US). They only count for around 35% of the marks, but a 6 out of 10 can definitely cause some anxiety. As mathematicians, they find it difficult to discern between a 'correct' or valid response and an 'even better' response.

The discussion forum model last year did not really work well, since the first respondent could write a virtually perfect solution, leaving little scope for further dialogue and contribution. This year, we have changed these to 'journal entries' where the student respond to the prompt, without involving others.

We three work extremely well together. We very much doubt this could have been anything like as successful if teachers just were co-opted into the program. We all know each other's strengths, and we are 100% committed to the success of the course.

If one of us was no longer able to run the course, give up time in the evenings etc, then it could cause complications.

If you have any questions or comments, please do not hesitate to contact us:

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