Minutes of the 2014 UofC Teachers' Symposium of 27 Jan 2014
Minutes Taken by Sue Bromley, Edited by Gerry Donaldson

Carey Williamson:

Welcome to the UofC's ICT outreach program, well served by Mea Wang and Gerry Donaldson.

Mea Wang is the contact for guest lecturers for CSE teachers.

Mea Wang – Review of CSE Education week. 120 capacity, 100 came.
- New format of registering in advance was successful for UofC.
- Weather kept some away. @-30, C-train and busses are difficult.
- One school wasn't able to come, due to large numbers from other schools.
- Future Ideas: Ensure the 30 level students are encouraged to attend. They benefit the most from coming to UofC's campus.
- Obtain more feedback from the students as to how they viewed it.

Mea Wang - [Technovation](#) – Is a mobile app development program, specifically for female high school students. Links female students up with women mentors in the business world. Most female students are eligible, the student does not have to be registered in CSE. Students are provided with lots of resources. Participants may receive assistance in networking, and/or credits perhaps, can be used on a resume, provides mentors, connections, and supporting materials.

Starts with Hack Day on Saturday Feb 1, 2014 – App Inventor 10-4:30pm.
Followed by weekly meetings on Wednesday's from: **6:20 to 8:20 at U of C.**
Runs until April 26th, 2014.   There is room still. Email meawang@ucalgary.ca.

Shawn Blakey – presented the IB CSE Program offered at Churchill.
IB is designated as a Circle the World idea, and CSE is 1of 6 groups. Students can enroll in either Full or Partial IB. Currently Churchill's CSE courses are as follows:

Computer Science 101, 201 202, 301 302 (for IB) - 31 IB 33 IB – 5 credits, project module.

All are split classes. Courses are comprised of: Theory, Skill building, Mastery, Mini Projects, Internal Assessments and Timed Programming Tests. IB exam style questions & Mastery Projects Rubrics. Shawn uses [d2L](#), Starter Activities, Blue Pelican, PowerPoint, web resources, flipping & Feedback. Key Principal, Cues, and Style, etc. Guided solution. Physical Location is in a classroom. Students are only grouped according to
what course they are registered in. Pros: Inspirational, exemplars, benchmarking, passions, tutors, all students see that they can achieve.

Various IB Notes:

Most common in US and Canada; and more common for Female students.
80,000 in Nov; 121,000 in May wrote IB exams.
This year, at SWC, 10 students registered in CSE IB; 5 full, 5 partial.
240 HOURS OF INSTRUCTION must be completed by APRIL.

4 cores: System fundamentals, computer org, networks and HL?
Case study: network security, good examples to use. Data encryption.
Internal assessment: – solution, client: Now Web based. 5 pages.

Computer Science is now considered a science, so it can be chosen as a science.

James Chow – presented CSE as offered at Western Canada High School

3 credit 10, 5 credit 20, 5 credit 30
CSE 10 Program: 3 credits Robotics, 3 credits Programming. Encouraging students to try things. Allows more students to run though it, thus increasing the number of students in the higher level. Attrition is about 30%, so not all will get all their credits. Getting through 1110 is the hardest portion. Wanting to get ALL of the other 3 sciences is common for Western Students, so hard to fit in CSE.

An all-girls class has been considered, still debating the idea and scheduling.
d2L is a very important teaching tool. Sample programs are there.
No textbooks assigned, but textbooks as resources are used.
C++, Java, Advanced Android course. Samsung. Developed their own app and put it in the App store. Create something tangible at the end.

Eclipse and "Code::Blocks freeware" for C++, CS club -
http://www.codeblocks.org/.
Curriculum based marking. == Mark Alberta Educations curriculum. i.e. Outcome 1.1, 1.2, 1.3, 1.4. 0-5 in each category. Used at Chestermere Middle School too. Mastery of curriculum objectives rather than assignment completion. Course philosophy. Rigorous. Go above the simple assignments.

Take a smaller game assignment and then improve on it from there.
Examples are: Tic Tac Toe, AI strategy, Number guessing game. Get the program working, then do high low hints and better than that, various levels. Master the basics, and then advance it after that. Collaborative work is ok, but only to help them enough to get them over the stump.

Build it from scratch. Don't use the built in classes unless there is a reason.

At the 10 level: Use a *Pyramid program* to teach a double nested loop. The user gets to enter the number of levels that it will build.

Tycoon game at the 10 level. Uses random number generator, the programmer sets the variables and the pricing, etc.

At the 20 level: *Knights Tour problem*. The knight is placed somewhere on the chessboard and has to move to every square on the chessboard, using his move pattern of an L-shape move.

Higher levels:
Evolution Program utilizes strings and arrays. Strings, parallel arrays, base string, comparison string. Can you come up with complexity arising from randomness? Gutenberg program.
Flood fill algorithm. Grid, pixel, top corner, and use plain flood fill. Mastermind type-guessing games. Using the IB Waterloo question.
Deal or no deal, type of game, using a suitcase.
Blackjack game. Teaches that gambling is rigged. **AI** rules are clear and simple. 3-5 different method of cheating, player cannot detect it. Stack the deck, etc. Make it look unlucky. Builds engagement. Shuffling algorithm in it. Calculating the value of a hand. Ace = one or 11. All aces count as 11's unless you bust and then they are counted as a one.

Josh Prowse at reviewed CSE courses Lester B. Pearson:

There have been some changes this year:
3 classes CSE 10's, 2 classes at the 20's and 30's split.

In the 10 program teaching Javascript, Website and build a Java based game. Not teaching Computer Science 2 or 3 anymore. Working on Files and File structures, more at the 10 level. Then more advanced Java features at the 20 and 30 level. At the 20 level, building and developing a game or applications.
30 build on a GUI or improvements to the 20 level games/apps.
Using the project module is much more rewarding and provides more games to run through on the Google Play store.

Gustaaf Wehnes at Aberhart HS, reviewing CSE courses being taught:

1) Multi-Media 2) CSE 10/20/30 (3 way split in one classroom!) and 3) Math 10C
Using: Visual Basic.net, Beth Brown books. Java, BlueJ, Eclipse
In this program, there is no client side scripting. In the 20/30 there are more android games designed & developed. Using more tangible, text based games. Conditional logic.

Discussion topics: - Who's my Audience? Who do we do this for? The average, or high-end student? Not convinced about bringing in Alice. Amount of time versus academic need. Sports influenced school. Possibly a Computer Science Club; evaluating for next year.

Karen Kiefer at Diefenbaker: – HTML and JavaScript, Client Scripting, and Alice. Java Greenfoot and Eclipse. This variety and configuration keeps the numbers high and Diefenbaker has full classes.   Textbook: The Lawrence Press Book is used in class. And the d2L shell incorporates Cay's Big Java things. Karen would like to bring in more games methodology, and larger projects for the higher levels. Also, projects that can be improved upon to use at the higher levels. Ideas and examples would be helpful to her d2L. She has started a Computer Science Club at Diefenbaker and they are looking at building an app.

Allan Schaber at Chestermere Lake Middle School in Rockyview :
A Mac lab is used mostly for the programming class. Working with Grade 9's and Grade 7's. Scratch is a good intro for grade 7's. It is more watered down for the 7's. The Grade 8's then transfer to Alice 2.35, this keeps simple. The transition from Scratch to Alice greatly increases the excitement of the students because it is in 3D, not just 2D.

The school is generally more PC orientated, but the lab being used is comprised of Macs at this time. Alice was designed for the PC, so this creates logistical frustration in working with Alice on the Mac; it does not meld together and operate that well.

The MOOC Solution - by Gerry Donaldson:

Have videos will travel. Create a sequential 10-20-30 CSE program of studies; through our teachers. Design the course in d2L, and make use of videos available in the Udacity course to assist the students in their learning. DON'T link the video's in d2L, too time consuming, but you can use these videos as they are still posted.

Advanced Placement Computer Science can be based on the existing MOOC based course; and Cay Horstmann's MOOC videos. There are 677 videos, each 2-5 minutes long, available for us to use. You can utilize these MOOC video's in your course, to assist with the student learning. Don't submit INTO d2L; just use it from this site:

Udacity Public Domain Java Videos can be found at:
www.comscigate.com/udacityvideos.rar
Udacity course is still posted and can be found at:
https://www.udacity.com/course/cs046

MOOC is a Creative Commons. The material can be put it in your own d2L etc. You can't use these videos for anything other than teaching. But it is legal to put them in your d2L's. Can't make money from them, but you can use it for teaching.

Cay Horstmann Books: Big Java, Early Objects. Java Concepts, Early Objects.

Java is obvious common language to use, as Android apps are developed in Java. d2L should be used as it is the LMS (Leaning Management System) used by CBE, CCSD, SAIT, UofC, and Alberta Distance Education. (Moodle is used in Rockyview & elsewhere in Alberta.)

BlueJ IDE is an effective IDE to use, as it is used to teach objects, and OOP is easier to understand this way. It is the IDE (Integrated Development Environment) used by the Udacity Java course.

A high school computer science curriculum should include a computer programming language and other topics such as algorithmic logic, Boolean Logic, Gates, Number Systems, Machine Language, Processors, Operating Systems, Data access in the cloud and Robotics.

Other points:
There are two other related MOOCS based on the author Robert Sedgewick:
Algorithms Part 1 and Algorithms Part 2.

There is an Advanced Placement Java MOOC based on Blue Pelican Java textbook.

Google's money is going to MOOC's in the future. This is a definite future trend.

Round Table Discussions:

Question: What are we doing to draw junior highs into CSE?
CTF is being written. Include students in junior high into High School.

Question: Video material what's the best way to use this or share this?
Evaluation material is really important, and can be shared. But how do we put this together. Perhaps this is what Gerry is working on.

Discussions:

1. [TeacherLogic](#). Not exactly user/teacher friendly.
2. 18 = adult, versus, CBE student and parent approval of marks.
3. Gerry – [Dropbox](#) is good for data storage and backup, but others said [Dropbox](#) and [Google Drive](#) are not accessible within CBE and CSSD.
4. Guustaff – uses [d2L](#) instead of TeacherLogic to post marks.
5. James Chow – parents need to know about the cutbacks in education, how dramatic they have been, and how much they are affecting courses being offered. The parents are not seeing it/experiencing it/feeling it. It is not just the "fat" being skimmed off; it is also the school's effectiveness and scheduling/logistics.

Teachers Convention: CSE Sessions on Thursday and Friday at St. Mary's:
Mea Wang/Harvey Duff/Larry Katz/Steve Martin/ Gerald Chung/ Lance Pederson/Andy Mikula - iCloud- GameMaker - GML Language _ OOP for kids – Science-Programming in the Physics Classroom- Scratch in elementary.