

Digital Divas: Computer Clubs for Girls Trial
Brentwood Secondary School
2007

Co-ordinated by

Swinburne University of Technology Women in ICT group



and

Victorian ICT for Women Network



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1. Putting the 'Wow' back into IT for girls: The Brentwood Secondary School Trial

In recent years in Australia we have seen a significant decline in the number of students entering IT degrees and subsequently a significant decline in IT graduates. Disappointingly the decline in participation by females is even higher than for males. Research conducted by the project coordinators confirm this trend (Craig, Fisher, Scollary and Singh 1998; Lang, Lewis and McKay 2006; Lang and McKay 2006; Lang 2007) as do the following government statistics:

ABS *Labour Force Survey* reported approximately 371,150 people employed in ICT related positions across the economy in August 2006.

Of these ICT employees, 84.5% were male.

The 15.5% of females in ICT were mostly represented in the occupations of computing support technicians (26.2%), computing professionals (18.8%) and IT managers (22.7%).¹

Under-utilisation of the female perspective is a problem for the ICT industry and is leading to a lack of female perspective in design, communication and creativity. Much of the current research indicates that it is the early years of secondary education that influence children's decisions regarding career choice. Many girls are initially interested and engaged with IT in their early years of schooling but this fades as they reach middle and senior secondary school. There is much research that suggests the reason for this decline in interest stems from the perception that, among other things, IT is 'geeky', male dominated and generally not a people focused career. This computer club trial, based on a successful UK program, is an intervention attempt to reverse these negative stereotypes and show that girls can 'do' ICT equally as well as boys.

2. Background of UK program

Created by e-skills UK, the not-for-profit Sector Skills Council for IT and Telecoms, the CC4G programme was developed for girls in response to the gender imbalance within the IT industry in the UK. CC4G has been successfully delivered since 2002 and offers more than 80 hours of e-learning and 170 hours of offline projects and Challenges. The Courseware is mapped to the English ICT curriculum and offers many cross-curricular benefits. All the activities were developed specifically to motivate and sustain the interest of

¹ <http://www.ozwit.com>. Resource Materials / Statistics. Last Accessed 8/11/200

girls aged between 10 and 14 (from Year 6 of primary school through Years 7, 8, and 9 of secondary school).

3. The Brentwood Trial

The CC4G materials focused on activities that girls in the UK may be specifically interested in. We recognised that what might work for girls in the UK may not work in Australia. The UK model was also linked to the UK standardised curriculum objectives.

The Brentwood Secondary College trial used the CC4G materials in this pilot with no modification or editing. The trial was structured as recommended by CC4G as a weekly lunchtime club. Initially 23 Year 7 students signed up as members. The trial had the full support of the School Principal, Ms Vicki Forbes, as well as the IT manager Mr. Gordon Claney and Mrs. Anna Crow, an IT teacher and Year 7 Form Group teacher.

Mrs Crow was the teacher facilitator in the school environment, but mostly the club was conducted by five students from the Women in ICT group of Swinburne University of Technology who were given 'pupil facilitator' access to the back-end of the club materials and led the students through the tasks each week (Zeina, Lana, Jenny, Yvette and Yuan). The project was managed by Catherine Lang who had attended facilitator induction sessions in the UK in June 2007 and was provided with one-on-one instruction at the e-Skills offices in London. Catherine delivered an induction session to the Swinburne WICT students and Mrs Crow at Swinburne University of Technology prior to the club launch. This induction and materials was supported by the Swinburne University of Technology Women in IT-Swinburne research grant. The trial was also supported by the school's broadband provider, Netspace Online Systems, who increased the school's download allowance for the duration of the club.

4. The club in action

After deliberation between the school and university timetables it was determined that the club be held each Thursday during Term 3 2007. The plan for the club was:

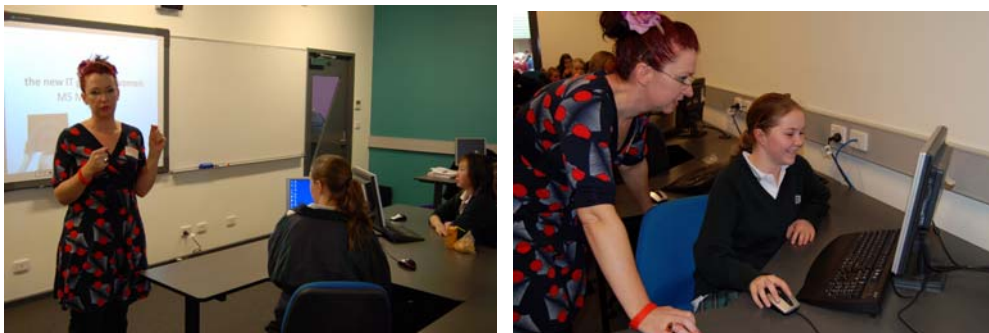
Week 1: Introduction of club to students – allow time for facilitators to ensure all students log-in. Program Manager introduced site, concept of interview of a celebrity – girls browsed Celebrity topic. Despite 23 girls originally signing up, only 14 students attended.



Week 2: The WICT students guided the girls through the Celebrity topic activities. Homework was set for them to watch interviews using auto-cues. Attendance was down to 7 students.

Week 3: The auto-cue software was accessed through the CC4G site. Girls wrote their interviews, interviewing each other, some interviewed Mrs Crow. There were only 4 students this week.

Week 4: Celebrity guest was Ms Megabyte, a local identity who had a spot on breakfast Television. Ms Megabyte gave an inspirational talk to the students about her experiences working for Microsoft, meeting Bill Gates and being on morning TV. She encouraged the girls to get involved in IT. The attendance at this session was over 20 (boosted by teacher encouragement and the principal).



Week 5: Girls listened to their interviews and decided that they did not like their own voices. They finished the celebrity topic. Only 5 students attended.

Week 6: No club – parent teacher interview day at school

Week 7: Fanzine topic work. The WICT pupil facilitators guided the schoolgirls to complete their project and create a Fan magazine. 4 students completed their project.

Week 8: Final session, food and music were provided. Students were presented with their topic certificates.



5. Student survey responses and reflections

5.1 Pre-survey

Prior to the start of the club Mrs Crow e-mailed an on-line survey to the 23 students who had expressed an interest in the club. Only 4 students responded to the survey and many questions were not answered. The survey attempted to determine student confidence around IT use and whether they were considering an IT career in the future.

5.2 Post-survey

After the lack of response to the pre-survey the post-survey was simplified to only 6 questions and paper based. It was administered to all students who initially signed up for the club to determine why they did not participate and also allowed those who did attend to give feedback on their activities.

The students were asked how we could improve the club and most responded that this could be done by not holding it at lunch-time or giving more time to activities. Their responses to what they least liked about the club was overwhelmingly related to it being held at lunch time. Those who did attend commented that they loved the interaction with the university students who ran the club, particularly their friendliness, two liked the “free stuff” and two the

guest speaker Ms Megabyte. The reasons for not attending were given as “because it clashed with hockey training” (4 girls), a clash with netball training (1), I kept forgetting (1), friends didn’t go (1), and because it was at lunchtime. One girl said she got bored and that was her reason for not attending after two sessions.

One question asked the girls if they intended to study IT in future years in secondary school, all but 3 responded positively to this. Interestingly two of those who said no wanted to be a doctor or pharmacist. The final question asked them if their dream career will require them to use computers, most responded negatively to this one, mentioning dream careers of Rock Star, Psychologist, Actress, Dancer, Zoologist etc. One girl wrote “don’t trust them”.

5.3 Pupil Facilitators

The WICT pupil facilitators were interviewed by a research assistant to gain their thoughts about the club. The interviews were conducted at Swinburne University of Technology in two small groups. The pupil facilitators generally enjoyed their participation, acting as role-models for the students, and generally being given the opportunity to run the club.

Like the secondary school students they enjoyed the visit by Ms Megabyte and commented:

... she was talking about her experience in IT, and obviously how she’s become successful. She’s on channel 7, channel 9? She does the morning show, and does all the related IT work. And just her coming and speaking to us, like... Even though some people say there are not a lot of jobs in IT, she actually made us realise there’s heaps, and heaps, and heaps. And that you can be really successful out of it one day. That’s what I liked.

They also enjoyed their interactions with the schoolgirls with one commenting: “Well, I think that it is great to be more like friends, like a role model sort of thing” and another:

My favourite thing is that you watch the kids grow, and... well we have problems with maintaining the numbers because of basically the netball tryouts, and hockey tryouts, and volleyball, and all the other things that interact during the lunch time at schools. However during the first week when I started typing in front of the girls they started drooling: “Look how fast she can type!”, and it was really funny because basically we sort of take it for granted that we can sit in front of the computer and type relatively fast, you know? So working in front of those girls who were basically walked into the room thinking they are

strangers, and they are university students, and they do not think about us changed now. We are walking into the room now and they get excited when they see us, and tell us what's happening at school, and what's happening between their friendship groups. So there are still interactions, but the girls are pretty comfortable with telling us that they've got problems, or something, so we are really growing together as a group.



The WICT student Facilitators with Ms Crow

6. Impact and benefit of trial

Positive:

The girls in the club enjoyed the Interview and Autocue component of the Celebrity topic as well as creating their own Fanzine. Using the technology in this non-academic club environment contributed to their enjoyment.

The university students who acted as Pupil Facilitators had a positive learning experience. They built leadership skills while interacting with the younger students and acting as role models.

The teacher involved and the principal at Brentwood acknowledged a need and value for this girls only IT experience, but would like it as part of the middle-school elective program rather than a lunch-time club, and indeed suggested that it would have a greater effect in that format, rather than lunch club.

Less than Positive:

The participation numbers were very low. 23 students initially signed up, 14 came in week one, 7 in week two, 5 in week four. There was a lack of wide-

spread involvement with most of the participating students coming from Mrs Crow's home-group suggesting a lack of acceptance by other form groups and year levels.

The concept of a lunch-time computer club can be seen as illogical in that food and drink and computer labs do not go together. Fortunately the school bent the rules for eating and drinking in the laboratory, but students were often late because of the need to go to the canteen before attending the club. There was really only 40 minutes at the most of club-time. Students could rarely get immersed in their activities before the need to log-out and get ready for the afternoon classes.

It should be noted that the brightly coloured give-away bags made no impact, in fact the students elected to leave them in the room with the teacher rather than even take them home. Lastly the site and log-in was temperamental. Some days it was very slow and girls reported that despite having been set up in the club they could not access it from home. This somewhat defeated the purpose of easy accessibility and simplifying ICT to girls.

7. Conclusions and way forward.

The club had minimal impact in this format. Lunchtime clubs are not a part of the culture of government secondary schools in Australia with girls of this age wanting to spend their short lunch break socialising, not playing in the computer room.

The lunchtime club disconnect suggests a need to re-focus and re-package the concept as a middle-school elective unit. This would provide continuity as well as be packaged to be relevant to the curriculum of this age-group. A computer club as part of the elective program supported by on-line activities would be more viable. It is also worth investigating a virtual club, allowing students to access a secure site from anywhere around Australia.

The UK materials, while engaging, are in need of being 'Australianised' and mapped to our curriculum, environment, language and accents, as well as demographic profile of our population. There was an abundance of materials in the current CC4G site, but unless students are provided with guidance and instruction, they can spend their time playing the "Flash" modules with little continuity to their learning. Two or three modules (each module has a major challenge and three subsections of activities) would easily fill a one semester elective.

We have trialled the materials in a semi-guided format in a classroom, Professor Tracy Camp, our colleague in the USA trialled the materials in a more open-ended format. Neither trial has been particularly successful.

It is interesting to note that the findings from our short and limited trial resonate strongly with the best practice recommended by University of Southampton evaluators of the UK program² as follows:

- The possibility of engaging in longer term, project style activities should be available; the facility to save 'work' from week to week should also be offered; session times should be extended where feasible.
- The development of the CC4G remit to include information about IT jobs and relevant careers advice and guidance. (Fuller et al pp 39-40)

It is proposed that in 2008 an Australian computer club for girls program title "Digital Divas" be trialled as an elective in the middle-school elective program. The longer time-frame will allow for continuity in confidence development and complement the club format. Materials will be developed that align with the Victorian Curriculum Learning objectives proposed for middle school students. As much as is possible university students will be used as active role-models.

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