



Real Computing at Year 13

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1 Challenge

Howard and Atkins (2006) argue that the lack of a high school computing curriculum is a significant barrier to students choosing to undertake tertiary level computing education to pursue in computing. While there are moves to develop such a curriculum, the capabilities of most schools will not stretch beyond the traditional word processing and support of technology curriculum areas.

2 Response

In 2007 Otago Polytechnic intends offering Computer Science via a hybrid teaching model to every high school in the country.

The aim of the programme is to provide ICT content that is of interest and relevance to the students; attracts NCEA credits; is of educational merit; is beyond which is currently available in schools; reflects IT practice; demonstrates pathways for tertiary study in IT; and, is financially viable.

This initiative is being developed with the advice and support of OtagoNet. The request has come directly from several schools at local, regional and national levels. This follows on from an established relationship with the OtagoNet schools (Gasson and Baldwin 2006).

In 2006 Otago Polytechnic has successfully undertaken a pilot programme, delivering “real computing” to rural high school year 13 students via a hybrid delivery model. This “real computing” steers well clear of word processing etc, instead pushing the limits and teaching microprocessors (clearly differentiated from TIM or support of other subjects). The pilot has involved five schools via video conference (VC: Telecom's SchoolZone with assistance from the Otago Community Trust). Additional material and interaction is provided using a learning management system, and a contact workshop. Regular face-to-face visits are seen to be essential to engagement that carries into the VC arena. This hybrid model is proving extremely effective.

McCarthy (2002) describe allowing a school to teach under CPIT's accreditation. This, though, relies on school staffing, which is a severely restrictive aspect of high school computing, particularly in rural areas.

For the 2007 national programme students will undertake 1 hour per week of direct contact (via SchoolZone), 3 hours per week supervised contact (schools widely using this already for correspondence courses etc) and 3-4 hours per week of self directed work. In addition they will attend one weekend intensive session. These will be held at Otago Polytechnic, at high schools where there is a sufficient cluster of students, or potentially at other ITP campuses.



Figure 1: Pilot programme delivered to five rural high schools via video conference, workshop and learning management system.

The 4 modules are, hardware, programming, operating systems, integrated project, most of which will be taught using ATMEL butterfly microprocessors.

Students gain 28 NCEA L3 credits <http://www.nzqa.govt.nz/ncea/acrp/secondary/7/741.html>, as these courses meet NACCQ requirements http://www.naccq.co.nz/bb_view/bbpre.html). Schools are responsible for this translation (<http://www.nzqa.govt.nz/ncea/acrp/secondary/7/71.html>). This programme is eligible for STAR funding, the restrictions for “conventional school subjects” include almost all of computing but stop at level 4 (and these courses are level 5).

References

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- McCarthy, C. (2002). Making the transition - computer studies in Year 13 at Burnside High School: A case study. *15th Annual Conference of the NACCQ*, Hamilton.295-302