

CLASSROOM PRACTICE CASE STUDY BP618

NOV 2006/UPDATED AUG 2009

GRAPHICS AND TECHNOLOGY

YEAR 11



PARTNERING GRAPHICS WITH TECHNOLOGY

Teachers at Lytton High School planned this unit as an opportunity to introduce Technology achievement standards into their Year 11 Graphics course. They hoped that success in gaining NCEA credits would encourage students to continue with Graphics the following year, and to take Technology as a second option.

FOCUS POINTS INCLUDE:

- Client interaction – using a local enterprise as the client for whole class activity
- Developing graphics skills within technological practice
- Functional modeling – using mock-ups to explain and test design ideas

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PARTNERING GRAPHICS WITH TECHNOLOGY

Background

Lytton High School is a decile 2 co-educational school whose students come from a variety of socioeconomic backgrounds within Gisborne City. The roll of 909 is 67% Maori, 31% Pakeha and the remainder including Asian, Pasifika and international students.

Technology is compulsory at Year 9 and an option in Years 10-12. Materials Technology and Graphics are option subjects in Years 10-13.

A dramatically falling school roll in the late 1990s led to a drop in Technology classes and staff numbers in the early 2000s. The department was losing Technology students at Years 12 and 13, because too many students were failing at Year 11. They were coming into the workshop wanting to “make things” and had difficulty understanding the relevance of ongoing documentation requirements.

Head of Department Ross McDonald could see that the Graphics and Technology area was suffering, and moved from teaching Automotive to taking on all the Graphics classes. In 2005 he introduced Art and Design teacher Ana Taumaunu to Year 10 Graphics.

Ross’s background was initially in the trades as an A grade mechanic before he went to Auckland Teacher’s Training College. After five years teaching Metalwork at Gisborne Intermediate, he arrived at Lytton High School where, over 23 years, he has taught a wide range of subjects and is now HoD Technology.

Ana Taumaunu (*pictured on the right, with two students*) was a counsellor for Youth at Risk before moving into teaching. With a background in computer graphic design she majored in Art, Graphics and Year 7-10 Technology at the Gisborne secondary outpost of the Christchurch College of Education. After teaching part time at Gisborne Girls’ High School, Ana shifted to Lytton High School as an art teacher. Now in her fourth year at Lytton, she teaches Year 10-12 Graphics as well as Art and Design.

Pre-planning

Ross decided on a Technology approach within the Graphics programme, using the cross-over in these subjects to work on raising the numbers taking Technology. He came up with a new programme which would motivate students and also give them the chance to gain 42 credits in NCEA.

Ross planned that the Graphics students would pick up some Technology achievement standards, realise that it was what they were already doing, and be inspired to pick up Technology as a subject to complement their Graphics in the future.

While thinking about possible projects that would both grab the students’ interest and be achievable, Ross came up with that essential teenage lifeline – the cellphone. He decided to approach a mobile phone company to discuss a unit where students would design a cellphone, with the company acting as a major stakeholder.

An ex-student managed a local cellphone sales outlet and agreed to become involved as the students’ client.



Delivery



The Year 11 students started the year knowing that they were to be the 'guinea pigs' in a unit designed to test if the Graphics programme could successfully include Technology achievement standards. Ross says that they were mostly enthusiastic and gave the programme their best.

The two Level 1 Graphics classes were introduced to the brief: 'Design a high-quality finish model cellphone targeted at the youth market of the future'. The phone had to incorporate a video camera and MP3 player, as well as other features which students would determine individually.

Because this was a trial unit, Ross made the specifications for the project quite tight. The models were to be made of foam and dipped so that they would resemble the plastic/glass finish of a phone. The final device had to fit into the palm of a hand.

There was a wide range of stakeholders ranging from the sales manager of a cellphone outlet to teachers, parents and peers.

The sales manager agreed to come and talk to the class and show them a brochure of their current stock, for which the students prepared some searching questions. Ross says that their client's easy-going outlook made him a popular stakeholder with the students, and that his opinions and feedback were a great help to all. The client resigned from his job before the assignments were completed but continued his involvement with the students' projects.



After this meeting the students researched the development of cellphones and in doing this were able to meet the requirements of Achievement Standard 90051 (AS 1.7 v 2). In following up these observations they started to form ideas and direction for their projects.

After formulating their brief, more stakeholder feedback was received and the brief refined. At this stage the classes were formally introduced to the use of planning and specific production tools, such as Gantt and flow charts.

When designing their phones the class considered ergonomic function as well as what would appeal to the teen market through investigation and evaluation of existing products, recording their findings with evaluative notes. Students also completed an in-depth study on the cellphone and include any societal or environmental considerations.

Ross and Ana found that, as students worked through the assignment, their involvement and satisfaction in the project increased.

The teacher instructed the class on the design process and on 2-D and 3-D rendered drawing using isometric, planimetric and oblique drawing methods, which enabled students to incorporate the higher level of detail required to produce their models. The class then developed ideas through concept sketches of their design, with notes explaining the design key stages, key features and functions in relation to the specifications.



After this, students moved on to making mock-ups, which had to explain and test their design ideas, and be accompanied by evidence that supported the design decisions and key stages.

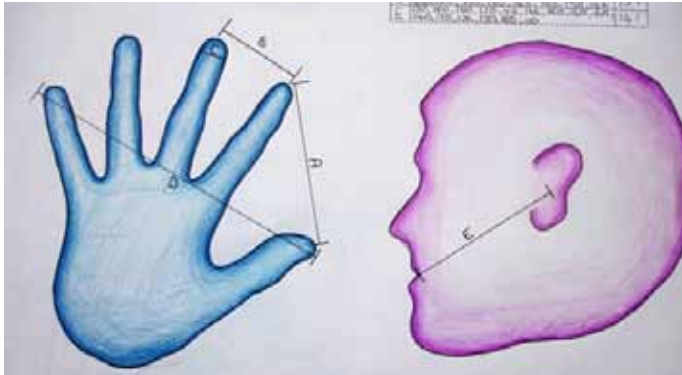
The students then did their final solution drawings and made a high quality model of the complete package to present to the client. The models were made of green polystyrene foam and covered in a mixture of plaster of Paris and PVA glue. Students experienced some difficulty in getting a good coverage of the plaster as it needed to be thick enough so that they could smooth the model with wet and dry sand paper.

The client came back to consult with the designers, who modified their models and then presented them for further comment.

During the final design evaluation phase, the students had to identify all the positive or negative features of their phone and justify the design solution against the specification. This also entailed consulting the client so that he could evaluate the solution against the brief and specification.

Ross offered a Technology class at night school, as part of the school's involvement in community education, but also to provide an opportunity for any of his Year 11 students who needed more time in the workroom to work on their projects.

Outcomes



Students enjoyed the challenge of this project and Ross comments “they’re seeing where they’re going and are very excited about it.” Working with their client gave the students a commercial perspective on their work.

Having students work on individual projects meant they could work at their own speed and also meant the teacher was freed up each period to help those who needed it. Because it was a senior class, the teacher was able to work on a one-to-one basis, knowing that the rest could be left to work on their own.

Ross and Ana are satisfied that the results are coming through so their approach to the subject must be working. “It was great to see our traditional Graphics



students being taken out of their comfort zone and the results have been encouraging,” said Ana.

“Every interval students were in the Graphics class working by themselves,” said Ross. “Teachers have always stayed in the area; if you show you’re happy in the environment and happy with kids coming in, they’ll take you up on that and the better kids will lift their standards accordingly.”

Ross notes that they are now getting students arriving and staying in this area. Year 10 Graphics was the only subject that had to be closed off this year, being capped at three classes, all of which have good students. “And we’re getting



better results from Year 11 than ever before. There’s a lot of passion and excitement going on in the class, the students are really enjoying it.”

Ross says that the Beacon Practice initiative gave the stimulus and support he needed to develop the programme. He notes that the Gisborne schools are very remote and teachers don’t have many opportunities to meet, show off work, and bounce ideas off each other. Working with Gisborne Girls’ High School has enabled the sharing of ideas and peer review, and support for his students’ work. Visits from outside facilitators have helped by providing exposure to different perspectives and approaches that the department hadn’t considered before.

Student reflections . . .

- “It took a long time and a lot of effort, but it was worth it”
- “It was going much further than in Year 10 Graphics”
- “I enjoyed the drawing and practical skills that I learnt”
- “I really enjoyed working on my assignment.”
- “Choice, much better than other classes. We had fun but also learnt heaps.”
- “Great subject, great project, great fun, great results, I hope.”
- “Excellent! Bring on next year!”



What Next?

Ana and Ross see the cellphone unit as a working document rather than a set programme, something they can change as they're teaching it. They intend to refine and repeat it in 2007. They have decided to limit the range of achievement standards to AS 90045 (AS 1.1 v2), AS 90050 (AS 1.6 v3) and AS 90051 (AS 1.7 v 2).

Ana and Ross will continue with their approach to combining Technology and Graphics achievements standards, and intend to trial some Level 2 Technology Achievement Standards in the 2007 Graphics class.

Only two Graphics students applied to sit scholarship in 2005 and both passed, the only subject in the school where more than one passed scholarship. The result of this was a rise in standing for the subject within the school. This also lifted interest in the subject by students and parents, which has been great for both Graphics and Technology.

Graphics has really picked up in the school and, for the first time, the school will need a separate Level 3 Graphics course in 2007 rather than one combined with Level 2, as in the past. In that year, Graphics with Technology had a 50% increase in students taking the subject at Level 1.

The rise in numbers taking Technology means that the school will be looking at offering separate Year 12 and 13 classes in 2007. The successful trial introducing the technology component into Year 11 Graphics means that this will be added to Year 12 next year and Year 13 the year after.

Ross plans to continue in the Graphics area, and when that is running successfully hopes that with his move back to Technology he will bring those students with him in their second option choice. He says he will keep looking for challenges so that he doesn't stagnate, on the grounds that if you lose the interest you also lose the passion for the job.

Two years on...

When asked to comment on the cellphone unit and whether it had evolved, Ross said that it was only used for two years (2006-2007) and was dropped for both professional and practical considerations. The original client had moved on, which wouldn't of itself have meant the demise of the unit, but at the same time the school timetable was changed. This meant that instead of five hours, classes would run over four hours a week.

Ross says that losing those hours has made the Graphics programme harder to complete and restricted the opportunity to incorporate assessment against Technology achievement standards within the programme. He considers there to be even less opportunity to add extra components, because teachers are trying to ensure they have incorporated the new strands of the curriculum into their course. "The unit was a worthy experiment, but Ana and I have had to move on."

However, Ross notes that they wouldn't have retained that exact unit because he completely changes the programme every two years. He says this stops teachers getting stale and allows them new challenges, and means he can make changes to suit particular student needs and teaching strengths.

