

Technology Teaching and Learning in New Zealand Schools

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I. Introduction

1. In recent years, skill shortages have been a major topic of discussion among business, in the popular press and in government policy circles. A number of surveys and studies from organisations such as the New Zealand Institute of Economic Research and the Department of Labour have highlighted the severity of skill shortages in New Zealand and the degree to which they are having adverse impact on the ability of New Zealand businesses to compete effectively. While skill shortages are caused by a number of factors, including tertiary education policy settings, earlier levels of education play an important role in equipping New Zealanders with the skills they need to succeed in a modern economy.

2. One area of weakness – indeed in crisis – in schools is the teaching of technology. The increasing number of students graduating from secondary schools with little or no practical skills, experience, training and understanding is unacceptable in a first world economy. This will negatively affect New Zealand's talent pool of skilled workers and will attract justified criticism of the compulsory education sector. The downgrading of the teaching and learning of practical skills is perverse. It is denying many students full recourse to a learning style that they prefer, enjoy and which will give them the skills and confidence to build on as they continue learning and developing.

3. This note sets out the main elements of a revised system that could be considered to address current concerns with the teaching of technology in New Zealand. These proposals are provided as a basis for discussion with sector stakeholders, departmental officials and Ministers.

II. Proposed Action Plan

4. Unorthodox measures are needed to get this situation righted as quickly as possible. All of the following proposals should be actioned concurrently to get the teaching of technology in New Zealand schools back on track, with a prime focus on practical and learning focus. These proposals are practical and can be easily implemented. They fall into four areas:

- the qualifications and training of teachers;
- the school curriculum;
- student performance, moderation and appraisal; and
- resourcing of technology teaching and school infrastructure.

5. Each of these is discussed briefly in turn.

2.1 Qualified and Trained Skilled Teachers

6. A key to improving technology teaching is to lift the quality of the technology teaching force. We need to attract qualified practical skilled people into teaching by signalling a career pathway where their expertise is valued and rewarded. Potential technology teachers with a Trades qualification should be given degree equivalence, and those with work experience should be placed as a trainee immediately on the teachers salary scale commensurate with their experience. This would work as follows:

- the training period for qualified and experienced potential technology teachers will be one year, just as it is for university graduates who wish to join the teaching ranks; and
- selection for the one year course will be carried out by a panel from university schools of education/colleges of education, representatives of the Heads of Departments of the cluster schools, representatives from the teaching and learning teams of the cluster schools and their principals.

7. In recognition that many of these people will find it expensive and difficult to move their family household to a training centre the following is proposed:

- to allow trainees to stay at home and carry out the year's training course, trainees will select a base school where they will go on section Terms 1 and 4;
- each section would be of at least seven weeks' duration;
- the training salary package would include a travel allowance will be part of their training salary package so they can travel to at least two other schools in Terms 2 and 3 for teaching sections;
- each trainee would be the responsibility of a training college tutor who may be on the staff at a university/technology teacher training based faculty or attached to those institutions as an outpost tutor; and

- the tutor will visit the trainee at each school on a number of occasions over the year and provide them with guidance and advice. This will be done in liaison with the principal of the host school, the SMT, teacher learning team, HOD Technology and the technology staff.

8. Successful candidates would be expected to attend a course on retention and introduction to teaching course at the host teacher training provider. These courses will occur during the year. The major advantage of this contact will be the sharing of teaching experiences and techniques amongst trainees. These courses could have trainees from several clusters in attendance.

9. Each host school within a cluster would be responsible not only for providing practical hands-on teaching experience but also the learning, experiencing and reinforcing of pedagogy, classroom techniques and school practices generally. The prime provider of this would be the teaching and learning team in each school, aided by the technology departments and senior management team. Schools and individual teaching staff would be reimbursed for the extra training they provide to trainees and each trainee would be part of the school's Year 1 teacher induction programme.

10. A prerequisite for this scheme to work would be the formation of clusters of schools that agree to take on technology trainees. Because the vast majority of schools host trainee teachers throughout the year, often from a variety of training institutions, this model should not really pose a problem. In the city areas the cluster arrangement is straight forward to organise. In the provincial and smaller rural areas the model could work like this. For example, a school cluster for Southern Hawke's Bay/Bush District, Manawatu could contain:

- Southern Hawke's Bay College (Waipukurau);
- Tararua (Pahiatua);
- Dannevirke High School;
- Freyberg College (Palmerston North);
- Queen Elizabeth College (Palmerston North); and
- Palmerston North Girls' High School.

11. The trainee living in Pahiatua, Dannevirke, Woodville, Eketahuna, Waipukurau, Waipawa, Ashhurst and Palmerston North would have several schools to choose from for his/her two major sections and the base training course would be structured, organised and monitored from the Massey University of Education department with an itinerant tutor employed to visit the variety of trainees. This model makes it feasible to keep a trainee at home with little or no interruption to their family and domestic circumstances.

12. After graduation, and if employment is not available in any of the cluster schools or other schools in the district, the trainee graduate has the choice of seeking a position elsewhere. Ongoing and final appraisal of the trainee would be made by the same or a similar panel that interviewed them. If it was felt that a trainee still needed extra time,

extra teaching sections and assistance would be provided and would be extended into the second year.

13. Ideally, the current employment and salary framework in the school sector should be modified to accommodate the above employment and salary proposals. If this cannot be done, then a creative use of management units should be looked at. Extra management units could be created and tagged for use by trainees and perhaps extended to attract technology teachers to hard-to-staff schools all over New Zealand. These would have to be of significant value and a paid shift for his/her family household should be part of this package.

2.2 Current Curriculum

14. The current curriculum must be scoped by a group of representatives from schools, industry and training providers to bring back its practical focus. The scoping group should include teachers, Heads of Departments, government officials, curriculum/technology experts and representatives from business and industry.

2.3 Student Performance – Moderation - Appraisal

15. The November 2006 PPTA report identified several concerns with assessment. Key concerns included excessive assessment, difficulties in interpreting achievement standards and lack of a practical focus.

16. Appraisals of student performance should centre on school-based assessment, national standard tasks for projects and national monitoring. Practical work should continue to be monitored by visiting panels of technology teachers. The current pass/fail marking system for unit standards should be revised to recognise higher achievement.

2.4 Resourcing of Technology Teaching and School Infrastructure

17. Technology teaching is resource intensive, in part due to the breadth of the curriculum, but also because hands-on learning requires smaller class sizes and expensive materials, equipment and infrastructure. The PPTA study released in November 2006 highlighted teachers' concerns about inadequate classroom support, preparation time, budget, equipment, buildings/spaces and classroom materials including assessment materials.

18. Spending on upgrading and provision of new practical based technology facilities should be a priority.

III. Conclusion

19. This report has set out the main elements of a new system for the teaching of technology in New Zealand schools. It has been prepared to provide a basis for discussions with sector stakeholders, departmental officials and the government. There is a crisis in technology teaching in New Zealand schools and a great need for reform if we are to get the teaching of technology back on track and help to address the country's severe skill shortages.