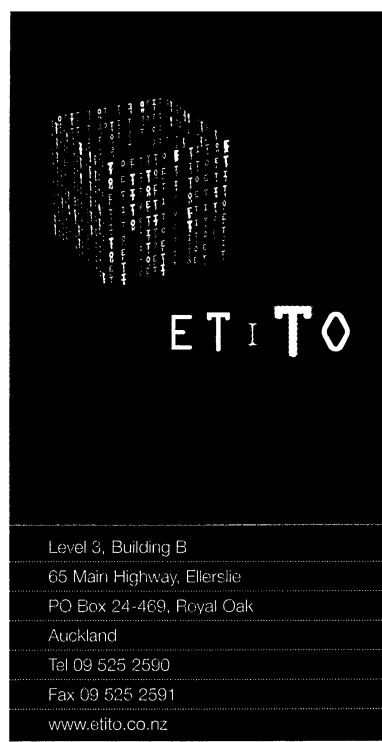


125

12 DEC 2006

5 December 2006

Mary Chamberlain  
Curriculum, Teaching & Learning  
Ministry of Education  
P.O.Box 1666  
Wellington



**Draft Curriculum: Technology – ETITO Submission**

Dear Mary,

Enclosed is ETITO's submission relating to the Draft Curriculum: Technology as forwarded in my recent e-mail.

ETITO is very pleased to have the opportunity to present its views on the draft Curriculum.

Please contact us if any of the points made require clarification.

Regards

A handwritten signature in black ink, appearing to read 'Ross Petersen', written over a white background.

Ross Petersen  
Bright Sparks Manager  
Ph 09 969 4517  
Mb 021 330 765  
rossp@etito.co.nz

# ETITO SUBMISSION ON THE DRAFT CURRICULUM: TECHNOLOGY

(Document to accompany the standard Feedback Questionnaire)

## **Preamble:**

ETITO is a Government-funded organisation with statutory obligations that include the responsibility for developing excellent national standards and qualifications for industry.

ETITO has taken an active leadership role in developing an entry-level qualification in electronics technology at Level 2 and 3 of the framework. This qualification was registered in 1997 and is currently active in 118 secondary schools at Years 12 and 13, with 2500 students involved in the programme. It is the most securely established and embedded industry qualification in NZ secondary schools. Its purpose is to provide a pathway for young people to tertiary education (and subsequent employment) in the ICT (electronics and software engineering) sector.

ETITO has always taken an active interest in educational developments and assumed a leadership role among ITOs in this respect. It has anticipated the changes in the curriculum that have occurred over the past few years and shaped its standards and qualifications to maintain their currency and relevancy as the changes in education have come through.

In addition, ETITO has been proactive in supporting the development and implementation of the Technology Curriculum and has consulted with the Ministry of Education and Technology Education NZ to ensure the resources and activities it has funded and developed are valid with respect to the Curriculum and Technology Achievement Standards.

## **ETITO lists among its support the following:**

- A matrix for programme development at Year 11, assessed using Achievement Standards
- A national Conference, 'Convergence', held in September this year, which involved Technology advisors and the MOE in the planning and execution (reported in the latest t-News from TENZ).
- Its full weight behind the bid to elevate the status of technology to the University List of Approved Subjects 2005-6.

ETITO's intention is to maintain and further develop this support for Technology in the coming year. ETITO's long experience and unwavering track record underpins this submission.

## Strengths of the Draft Technology Curriculum

1. The carefully graduated progressive achievement objectives bring a logical structure and hierarchy to successive levels of the Curriculum. This structure will be a good basis for developing suitable and appropriately targeted programmes and assessments at each level.
2. The upper echelons of the Curriculum provide outcomes for learners at the higher end of the practical and academic spectrum. This is important, as Technology/Technical has been traditionally perceived by students and their parents as a 'lower-level' subject and to raise the game like this is to sit it squarely alongside the more 'academic' subjects. This action aligns it with its new status as a subject on the University List and will help attract the more academic students that the top end of the ICT industry so badly needs.
3. The Draft Technology Curriculum focuses on the key analytic and management skills needed at the leading edge of research and development in the hi-tech industry and will therefore be instrumental in the preparation of young engineers and entrepreneurs for an active career in ICT that will make an impact on the future economy of NZ.

## Weaknesses of the Draft Technology Curriculum

1. The practical, 'doing things' need to be clearly identified and stressed at each level, not barely identifiable in the outcome development and evaluation section of the Technological Practice strand. Unless this critical area is clarified, the development of effective programmes, that have a balance of theory, skills and practical, will be impaired and poorly understood and executed. The Curriculum is the source document and needs to be crystal clear.
2. There is a need for the development of exemplars to clarify the intent of each of the descriptors in the Draft Curriculum. Terms like 'key', 'analyse' and 'justify' etc. need to be defined and made explicit, so that there is a common understanding. This is best done first with a glossary of definitions and more completely by examples and exemplars.
3. There are implications around the delivery of this Curriculum with respect to teacher supply, teacher training, teacher professional development and ongoing support and resourcing. All these structures take time, but need to be presaged and put into place. There is no cheap option and funding needs to be non-contestable and planned in advance.
4. ETITO would like to see the process of 'making', followed by 'evaluation' stressed, especially for very young students operating at the lower levels of the Curriculum. The statements need to be a lot simpler. This will support the evolution of students' technological thinking to keep pace with the development of their language and writing skills. The 'Convergence' approach, as modelled in the recent ETITO-TRCC organised conference that focused on the technological process, has the potential to act as an exemplar for this approach. This is more the 'Inquiry Learning Model' (as opposed to the widely used 'teach and do' pedagogy), with short, relevant instruction in skills and knowledge, followed by planning, R & D and final evaluation of any product or process by the stakeholder and/or client panel. The construction of products needs to be much more explicit. This intent is hidden in a lot of words in Technological Practice and was missed by several practitioners reading it for the first time.

## Summary

The Draft Curriculum is a visionary, holistic document, grounded in sound theory principles that have defined the elements and components of each of the strands of Technological Practice, Nature of Technology and Technological Knowledge.

It goes a long way towards redressing the misguided and commonly held opinion of Technology as a 'non-academic' subject, suited to the more practical, lower-ability student who is non-university material. This view has been partly responsible for academically talented students shying away from the subject and therefore not entering careers in an industry critically important for the economic well-being of this country.

The Draft Curriculum is to be applauded for this.

However, the Curriculum lacks emphasis and definition around where key skills and knowledge could fit and how this could be achieved right across the strands to underpin the development of a balanced programme in a school at any level.

There also needs to be careful definition of the terms and descriptors that differentiate between the levels used in the document, otherwise its objectives will not be interpreted consistently across the board. There are several places in the document where seemingly more sophisticated goals (based on the terminology used) are placed at a lower level than less challenging objectives.

The real heart of this curriculum is designing/developing/evaluating products that meet a real need. This is not explicit enough in the present document; however the potential is there in its intent. The intent is there but it is not overtly stated. There is a risk that the document may meet resistance in its uptake by the practitioners (and require more re-education). A curriculum document needs to be able to be easily understood and interpreted by its users in order to achieve quality implementation.

Finally, to implement and interpret a curriculum so wide-ranging and ambitious in its intent, effective strategies and resources need to be set in place, including the ongoing resource of well-trained specialist technology teachers