

## Science Careers Forum Emerging Issues

The recent Science Careers Forum, held in Wellington, 4 April 2006, was co-hosted by Futureintech, the Ministry of Research and Technology (MoRST) and the Royal Society of New Zealand (RSNZ).

Opened by the Minister of Research, Science and Technology, the Honourable Steve Maharey, the focus of the forum was to establish a greater degree of communication, collaboration and creativity within the science community in the promotion of careers in the New Zealand science industry.

Representatives were sent from all of the major universities and technical institutes, government-sponsored research corporations such as Crop & Food and AgResearch, as well as a wide range of individual industry professionals interested in this important subject.

An international perspective was provided by Ian Kennedy from the National Science-Technology Roadshow Trust. Ian gave a presentation on 'Questacon Smart Moves' – an Australian initiative to combat the declining interest in science, both as a career and as a topic of study.

Despite the range of presentation topics, several key issues recurred again and again, with consensus on several important points:

- Many careers advisors in schools do not have the appropriate knowledge to advise on science careers.
- Many science teachers don't have a background in industry or research making it difficult for them to promote careers in science to their students.
- Parents and caregivers are a student's major influencers when choosing a career.
- In general, the lower the decile school in New Zealand, the lower the student interest in science.



*Minister of Research, Science and Technology,  
The Honourable Steve Maharey*

On completion of the presentations the afternoon was reserved for an open debate to address the issues chaired by Richard Bentley.

Of interest to many participants were the promotional methods already in place. While most science research companies have a recruitment or promotion programme to encourage careers in their field, these programmes are often on a small scale and have limited results. A 'hub' was recommended to be established to maximise the efficiency of these programmes.

Other issues that quickly received unanimous consent were:

- Information on science and science careers must be accessible to all sectors of the community – job-seekers, teachers, students, advisors, parents and caregivers. This information must be of a high quality. Most forum participants agreed that stakeholders in the science fraternity often inadvertently issue conflicting or inconsistent information on the subject.

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tel 04 473 2023

fax 04 474 8933

enquiries@futureintech.org.nz

www.futureintech.org.nz

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- No one approach will encourage higher levels of participation in science – students are too diverse a group. It is important to understand the audience and target information on science and science careers in an appropriate and engaging way.
- No one approach will accommodate the promotional requirements of each region – each

has different needs and different resources. Regional activity should be facilitated as much and as soon as possible.

There was strong consensus on the value of promoting the concept of 'Careers with Science'. Tertiary students may well benefit from double degree programmes, such as Commerce and Science, Law and Science, Design and Science, to enable career flexibility and to

help propagate scientific awareness, knowledge, process and approach through all work sectors.

A follow-up meeting is planned for late May or early June to continue the dialogue.

For a complete summary of the emerging issues please contact Doug Buchanan, Futureintech – Projects Officer, tel 04 473 2023, [dbuchanan@futureintech.org.nz](mailto:dbuchanan@futureintech.org.nz)

## Congratulations to our new VIPs

The latest recipients of the funding have just been finalised and Futureintech is delighted to announce their success

**Dr N Navaranjan, Mechanical Research Scientist, Ensis Papro**  
*University of Waikato, Department of Materials and Process Engineering, School of Science and Engineering*

Dr Navaranjan will teach the application of the finite element method and collaborate with staff on plans for postgraduate research projects.

**Warwick Banks, Structural Engineer, Carter Holt Harvey**  
*University of Canterbury, Department of Civil Engineering*  
Mr Banks will participate in block courses on industrial timber buildings and multi-storey timber buildings.

**Chris Chitty, Managing Director, Robotechnology Limited**  
*Massey University, Institute of Technology and Engineering*

Mr Chitty continues the work begun on a VIP funded project in 2005. This year he will give lectures, help with revision of course content and tutor students in mechatronics.

Futureintech's VIP (Visiting Industry Professionals) Scheme funds senior professionals from technology, engineering and science-based industries to spend up to three weeks in a tertiary institution. Their role can be teaching, advising on research and curriculum, or a mixture of both.

The VIP Scheme aims to encourage ongoing partnerships between industry and education. Top professionals sharing their industry expertise with tertiary students and staff not only provides students with much needed information to

plan their career development, but is also a valuable opportunity for university staff to find out what's new in their field of expertise.

The scheme aims to assist the university as a whole, providing academic staff with up-to-the-minute information about developments in the private sector, knowledge which helps improve teaching and research programmes; and gives students a sense of what to expect in the workforce once they graduate and a better idea of what skills employers are looking for today.

The next application deadline for the VIP scheme is Friday, 27 October, 2006. Preference will be given to New Zealand-based professionals.

Applications can be sent to Futureintech Director Angela Christie, e-mail [achristie@futureintech.org.nz](mailto:achristie@futureintech.org.nz).

# STAYING IN SCIENCE

AN INVESTIGATION OF FACTORS THAT ENCOURAGE STUDENTS TO CHOOSE SCIENCE AS A STUDY AND CAREER FOCUS

A Ministry of Research Science and Technology funded project in two parts

Staying in Science, the latest research paper released by the New Zealand Council for Educational Research (NZCER), shows optimistic results for the promotion of careers in science recording positive trends in students who're encouraged to pursue an education in science; both for the industry and for the students themselves.

The study showed that, "By and large, students who are still taking science in Year 13 are positive about their learning experiences."

The researchers emphasised that there was no single solution to encourage higher levels of ongoing participation in the sciences.

They found that student attitudes to the sciences could be broken down into main groups, or cluster patterns:

- **Serious Science;** those students who take multiple science and maths papers and genuinely enjoy their study.
- **Science/Business;** students with a broad range of interests who are relatively neutral about their career focus.
- **Keeping Options Open;** students with a 'mixed bag' of subjects and are unlikely to continue the study of science after secondary school.

Of particular interest was the difficulty in defining a career in science (or one that uses an education in science) as modern day careers are not restricted to the classic 'scientist' stereotype. Many science educated professionals use their training in a variety of roles, including management. This makes

interpreting trends in science careers difficult but does demonstrate the advantages for students studying degrees in multiple fields. Students need to be informed of the new opportunities now available to combine subjects in a job. Job flexibility is an attractive attribute in a career and opens up promotion of careers in science to students with ambitions and aptitude for those positions that work had in hand with the science industry.

The paper concludes with findings on how best to advise and support students:

- Students need rich opportunities to find out about the many ways sciences can be used in interesting careers. The larger the exposure to the science industry and the myriad of roles that are available, the more likely the student will find the most rewarding career option for themselves.
- Parents are the main influencers but not the only ones. The more students empathise with a subject, the more likely they are to develop an interest in its study. Face-to-face contact is far more effective than almost any other medium.

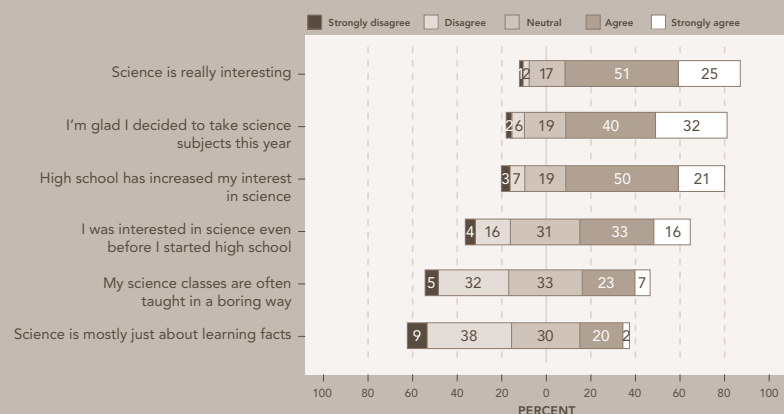
Funded by MoRST, the paper is intended to be used primarily to inform policy on the further promotion of careers in science. Copies can be downloaded from [www.morst.govt.nz](http://www.morst.govt.nz) or [www.nzcer.org.nz](http://www.nzcer.org.nz).

A table from the summary paper:

## Science at school

By and large, students who are still taking sciences in Year 13 are positive about their learning experiences. The picture painted by the Likert graph is encouraging.

FIGURE 1 Students' interest in science, and views about secondary science teaching



# Futureintechnews

## CALLING ALL SCIENTISTS

We've got engineers and technologist Ambassadors galore but where are those shy scientists?

Futureintech has a huge number of schools and teachers asking for scientists to work with their students but while technologists and engineers are forward in coming forward, scientists are dramatically less so.

Science Ambassadors can provide valuable insight for students into real-world applications of science. With the vast range of possible careers in science it's no surprise that students are confused as to what opportunities are available to them in industry. Studies show that encouragement to work in the industry comes best from those who have a passion for those roles.

If you want to be a Futureintech Ambassador and show students why you love what you do, contact your nearest Futureintech Facilitator. Their details are online at: [www.futureintech.co.nz/facilitators.cfm](http://www.futureintech.co.nz/facilitators.cfm).

## PRACTICAL LESSONS



Students at Edgewater College received a different take on technology when Mechanical Engineer Kane Alward came in to speak to Year 12 and 13 technology classes about his jobs at both Fisher and Paykel Appliances and Provenco. Kane led the students in discussions about the different pathways to becoming an engineer and the nuts and bolts of his work as a product designer.

Using examples from his work, Kane outlined to the class the technological process involved in developing products, including researching and testing prototype models. With the ATM machines skimmer fraud being a recent news topic, Kane structured his presentation around solving issues involved with ATM machine use at petrol stations.

Kane then looked at the students' own i-Pod designs and helped them in taking their ideas to the next step.

## NAVY ENGINEERING



Engineering was also a focus for 120 Year 10, 11 and 13 students at Papatoetoe High recently, when six engineers visited to give an overview of the work of engineering in the Navy. The students were given an insight into the practical application of engineering as a career on a ship, placing engineering into a context for the students. A follow up visit by this group from the Navy will demonstrate to the students tooling on a lathe.

## A GUIDE FOR CAREGIVERS



Futureintech's popular Guide for Caregivers will be available in Samoan, Maori and Cook Island Maori in May 2006.

Many young people might hate to admit it, but parents and caregivers are the biggest influence on their career choice decisions. A guide for Caregivers features information on the different career fields, the study options, and profiles of successful young professionals. This publication is another step towards meeting the long term challenge of changing

attitudes to careers in technology, engineering and science.

Contact Futureintech for copies:  
[enquiries@futureintech.org.nz](mailto:enquiries@futureintech.org.nz).

## WWW.FUTUREINTECH.ORG.NZ

Futureintech's website contains a wealth of information for students, parents, teachers and careers advisors. It has profiles of young people working in technology, engineering and science, and the companies they work for, along with information on different courses, careers and scholarships available.