

School science technicians are involved with a variety of changes which are taking place in their work and workplace, and believe that some further developments there are overdue. Changes have come both from progress in technology and curriculum, and through different resource needs as science teaching methods and assessment requirements evolve. Changes which have taken place, and drivers for further change, are:

1. Technology. Schools have received targeted funding for fast broadband and upgraded ICT equipment for e-learning. Increased availability of computers has also made it easier for technicians to communicate and to access information through the net; and to manage finances materials and equipment, and teacher orders. Technicians now have better information about materials and equipment available, with increasing options for sourcing the practical equipment which is most useful in this changing environment. Meanwhile, the use of TVs, VCRs, DVDs and OHPs has made way for computers, data projectors and on-line resources.
2. Curriculum changes. Technicians now need more expertise to assist the management of practical investigations and assessments, since NCEA has produced more assessed practical work, and made the standard of this work more important. They continue on the lookout for interesting equipment, demonstrations and experiments that will command student attention and stimulate learning.
3. Adequacy of lab provision and technician support for teachers. A 2011 survey of major Auckland secondary schools found important differences in the ratio between numbers of labs and science classes. While some schools could teach all their science in labs, others could timetable only 60% of classes there. This hinders teaching and stresses teachers. Technician support for teaching is even more variable: differing priorities have given some science teachers only a third of the technician assistance received in other schools.
4. Shifting the roles of teachers to improve teaching. UK education has been re-modeled to reduce teacher workloads and improve the quality of education: by replacing teachers with support staff in work, which they are qualified to carry out. Under a 2003 collective agreement, UK education has reduced administration by teachers, provided a statutory entitlement to non-contact time, and reduced their relief responsibility for other teachers. Support staff took on additional roles in schools, in administration, student support, management, and teaching.
5. Application to NZ science teaching. A rebalance needs to be achieved by distinguishing the roles which NZ support staff are (or could be) qualified to take, from the key pupil-focused ones, which teachers need to perform (and be affirmed in, and promoted for). NZ science technicians are under-utilised in their laboratory and field support roles, to the extent that many teachers are carrying out core science technician roles. Technicians could also do more of the science administration. School science technicians should receive distance learning PD in chemical hazard management, and many more of them could become Laboratory (Chemical Hazard)

Managers. There is also room for them to entirely manage the department laboratories - it need not be a teacher role.

6. Current studies of teacher resourcing. In March 2012, RSNZ carried out an on-line survey of primary and secondary teachers' use of science resources in teaching. This was intended to support three NZCER projects to improve achievement in science education through finding more effective ways of supporting schools to implement the new science curriculum. The projects are: science curriculum, e-learning in science, science education resources in the community. The survey did not query: adequacy of laboratory provision (numbers and facilities in them), equipment and equipment storage facilities, science budget per student, or relationship between teaching hours and technician time, even though it is well-known there are deficiencies. It may then be concluded that the projects which are proceeding are ones which the current government is prepared to finance, rather than all those which will establish what support science teaching requires. From 2007 we have school data for science teaching technician support, but there has been no independent study on government action on deficiencies, such as those UK and Australian education authorities have used to establish science funding priorities. Local issues in science technician employment are similar to those identified in UK and Australia: pay equity, access to basic training and ongoing professional development, low and variable levels of technician support relative to teaching hours, routes for (and steps in) career development.

In conclusion, there are ample opportunities for school science technicians to be used more productively, by doing work, which they are (or could be) qualified to do, in place of higher-paid teachers. However, their employment context has been so neglected that most of the steps to greater productivity require progress on outstanding issues. It is recognised that little action on overdue changes will be taken until school operations obtain more funding. (It is also regretted that other aspects of the current physical resourcing of science teaching seem unworthy of investigation.) Earlier public campaigns by the support staff union NZEI and the NZ School Trustees Association to increase school operational funding were unsuccessful. Obtaining a major change in school operational funding may need a pre-election undertaking by one of the major political parties.

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