

# Research developments

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NEWSLETTER OF THE AUSTRALIAN COUNCIL FOR EDUCATIONAL RESEARCH



- Using video to study teaching and learning in the classroom
- Impact of school libraries on student achievement
- But what about the boys?
- Report shows changing impact of socioeconomic status among Australian schools
- National Awards for Quality Schooling

**ACER**

# Using video to study teaching and learning

*Videotaping classroom lessons for analysis is now recognised as a valuable tool in the study of learning and teaching within classrooms.*

**V**ideo preserves classroom activity so that it can be slowed down and viewed multiple times by many people with different kinds of expertise.

A recent major international video-based study of eighth-grade mathematics lessons in seven countries including Australia was used to identify that there is no single best method of teaching eighth-grade mathematics in high achieving countries.

*Teaching Mathematics in Seven Countries: Results from the Third International Mathematics and Science Study (TIMSS) 1999 Video Study* was released in Washington in March. The study was conducted by LessonLab Inc., for the US National Centre for Education Statistics (NCES). The Australian component of the study was undertaken by ACER with funding from the Commonwealth, states and territories.

The study included 638 randomly selected eighth-grade lessons in Australia, the Czech Republic, Hong Kong SAR, Japan, the Netherlands, Switzerland and the United States. Lessons were videotaped for analysis and comparison across the countries involved to investigate similarities and differences in teaching practices.



*A class is video taped as part of the Learner's Perspective Study.*

Photo courtesy of Associate Professor David Clarke

The report found that each country shared some general features of eighth-grade mathematics teaching. However, each country combined and emphasised instructional features in various ways, sometimes differently from all the other countries, and sometimes similarly to some countries.

A typical Australian lesson was found to begin with a review of previously learned content (an average of 36 per cent of lesson time), followed by the introduction of new content (30 per cent of lesson time), and the practising of this new content (26 per cent of lesson time).

Video studies are useful in aiding the research on classroom learning according to ACER's chief executive officer Professor Geoff Masters.

'Video technology is a powerful tool for studying teaching and learning in classrooms. Video records of what happens in classrooms can be examined from different perspectives to provide a comprehensive picture of classroom life. The technology thus provides opportunities to identify factors that enhance student learning opportunities,' Professor Masters said.

Researchers interested in classroom study can utilise the data collected in a number of video-based studies through the International Centre for Classroom Research (ICCR) at the University of Melbourne. The ICCR was officially opened by the Dean of the University's Faculty of Education, Professor Brian Caldwell, on 7 March 2003.

The ICCR was established in collaboration with ACER and RMIT University with a Linkage-Infrastructure grant from the Australian Research Council. It is a state-of-the-art data storage and analysis facility and has an extensive library of classroom video data.

Dr Eva Jablonka, a visiting professor from the University of Berlin, spent a year setting up the centre as its coordinator, before returning to Germany in April. Dr Jablonka believes the centre contains the most complex data about students and classrooms available worldwide and that video surveys are an ideal method of studying classrooms.

'The best thing about using video studies is that you can observe the class as if you were actually there,' Dr Jablonka said. 'It can help to identify different perspectives of what is happening in a classroom situation as well. For example a teacher thinks one thing is happening but the students have a very different idea.'

The Centre's Director, Associate Professor David Clarke agrees. 'Video provides relevant technology to use in the study of classrooms because the data are complex. The complex nature of classrooms requires study using complex data. Video-based

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# *in the classroom*

studies are also appropriate for international research. Researchers can analyse data from their own country and compare it to other countries.'

Professor Masters explains that ACER was delighted to become a partner in the ICCR.

'Through its experience of the TIMSS Video Study ACER came to realise the powerful contributions that video technology could make to the study of classroom teaching and learning. We also realised that sharing technical resources would enable better storage, coding and analysis of data and be of mutual benefit.'

It is intended that the ICCR will eventually house one of the largest collections of classroom data ever accumulated. The centre currently houses video data relating to two major studies directed by Associate Professor Clarke, the Negotiation of Meaning Study (Australian mathematics and science classrooms) and the Learner's Perspective Study (mathematics classrooms in nine countries: Australia, Germany, Hong Kong (including Mainland China), Israel, Japan, The Philippines, South Africa, Sweden, and the USA).

Data available from the Learner's Perspective Study include 270 video taped lessons as well as more than 400 student interviews. The ICCR facility is available to researchers interested in different styles of teaching and classroom practice. So far it has hosted researchers from Germany, Hong Kong, Japan, the Philippines, Sweden, and the USA.

ACER researchers will use the ICCR facilities to conduct a secondary analysis of the TIMSS Video data. ACER will release a national report focusing on the Australian findings on mathematics teaching later this year, while the reports on the study of science lessons will follow during 2004.

Further information on the TIMSS Video study can be found at the NCES web site at [nces.ed.gov/timss](http://nces.ed.gov/timss), and the LessonLab web site at: [www.lessonlab.com/timss1999/](http://www.lessonlab.com/timss1999/), or by following the links from the ACER web site at [www.acer.edu.au](http://www.acer.edu.au).



Photo courtesy of Associate Professor David Clarke

*Associate Professor David Clarke supervises the video recording of a mathematics lesson.*

For further information on the International Centre for Classroom Research, visit the web site at [www.edfac.unimelb.edu.au/DSME/ICCR](http://www.edfac.unimelb.edu.au/DSME/ICCR) or phone (03) 8344 1140.

*Video technology is a powerful tool for studying teaching and learning in classrooms. Video records of what happens in classrooms can be examined from different perspectives to provide a comprehensive picture of classroom life.*

# *Impact of school libraries on student*

*The library is an important, but sometimes overlooked, part of a school.*

Research shows that school libraries can have a positive impact on a range of learning areas, including reading scores, literacy, and broader learning.

ACER Research Fellow Dr Michele Lonsdale recently conducted a review, *Impact of School Libraries on Student Achievement: A Review of the Research*, for the Australian School Library Association.

The roles of school libraries and teacher librarians in Australia have changed significantly in recent years. There has been a decline in the number of qualified teacher librarians employed in school libraries, an explosion in information production and the development of increasingly sophisticated information and communication technologies. There have also been changes in educational philosophy and practice, including a greater focus on learning outcomes, inquiry-based learning, evidence-based practice and school accountability.

Dr Lonsdale said, 'It is important that these changes to library practice are monitored. Research has shown that school libraries do have an impact on achievement, so changes to library practice could therefore be expected to affect achievement.'

Much of the research relating to school libraries and achievement has been conducted overseas. From this there is evidence to show that, among other things, a strong library program can lead to higher student achievement regardless of the socioeconomic or educational levels of the adults in the community.

'The research has also shown that collaborative relationships between classroom teachers and teacher librarians have a significant impact on learning, particularly in relation to the planning of instructional units, resource collection development, and the provision of professional development for teachers,' Dr Lonsdale said.

In addition, there is evidence to show that:

- a strong computer network connecting the school library's resources to the classroom and laboratories has an impact on student achievement;
- a print-rich environment leads to more reading and free voluntary reading is the best predictor of comprehension, vocabulary growth, spelling and grammatical ability and writing style;
- the extent to which books are borrowed from school libraries shows a strong relationship with reading achievement while borrowing from classroom libraries does not;
- integrating information literacy into the curriculum can improve students' mastery of both content and information seeking skills;
- a positive difference can be made to student achievement when school libraries co-operate with public libraries; and
- school libraries can make a positive difference to students' self-esteem, confidence, independence and sense of responsibility in regards to their own learning.

However, despite the accumulated evidence, and despite the common sense assumption that school libraries could be expected to have a positive impact on student learning, the contribution of school librarians to student achievement is still not widely recognised, according to Dr Lonsdale. 'It is

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# achievement

interesting that after five or six decades where research has consistently shown a positive relationship between student achievement and school libraries, that the 'case' for teacher librarians still needs to be made. Why are practitioners still needing to convince decision makers and administrators of the positive correlation between school library services and student achievement?'

Given the lack of national data about the current state of school librarianship, particularly in relation to teacher librarians and how they are being used in schools, it may be useful to obtain a snapshot of what is currently happening around Australia in relation to school library staffing.

Anecdotal evidence, and information from some state surveys indicates there is a shortage of teacher librarians; schools sometimes use librarians rather than teacher librarians, or staff with no teaching or library qualifications at all; it is an ageing profession, with insufficient graduates to replace retirees; and teacher librarians often have added responsibilities in terms of technology maintenance and student use of technology.

One survey of Victorian primary schools revealed that some individuals who called themselves librarians did not always have any library qualifications and some who called themselves teacher librarians did not always have a teaching qualification.

There is still a need for further research. Dr Lonsdale said, 'Much of the research so far focuses on primary rather than secondary students, but the impact of school libraries appears strongest at primary and junior high school and weakest at the upper levels of secondary school.

'It would also be useful to know why students come to the library, and to determine the relative roles of teachers and teacher librarians and their effectiveness in providing information literacy.'

*Impact of School Libraries on Student Achievement: A Review of the Research* is available from the Australian School Library Association website ([www.asla.org.au/research/index.htm](http://www.asla.org.au/research/index.htm)).



# *But what about the boys?*

*There is a growing perception that girls have become more successful in pursuing their educational goals than boys.*

**G**ender issues are a hot discussion topic for many teachers and parents. In the 1980s there was an emphasis on the education of girls, and encouraging them to study what were then non-traditional areas. But girls now seem to be doing better than boys in relation to literacy, retention rates and participation in some subject types.

Concern for boys' education and development was raised because they were over represented in remedial education and had higher levels of behavioural problems. Boys are also under represented in the study of subjects such as fine arts, foreign languages and literature. The expression, 'but what about the boys?' became common among those aware of the problem.

A new ACER report, *Boys in school and society*, draws on a range of ACER and other Australian research.

## **Literacy**

The difference between boys' and girls' achievement was especially notable in relation to literacy achievement.



ACER Senior Research Fellow and one of the authors, Dr John Cresswell said, 'This is an important indicator because achievement of fundamental literacy and numeracy skills in early childhood and early schooling are strongly correlated with successful educational outcomes in later years.'

Another author, and ACER Principal Research Fellow, Dr Ken Rowe highlights the extent of this concern: 'In the early years of school, boys constitute between 75 and 85 per cent of those children, usually in Grades 1 or 2, identified as 'at-risk' of poor literacy, and selected for participation in a Reading Recovery Intervention program.'

The difference between boys' and girls' success becomes greater as they progress through the primary school years. Two Australian studies in recent years have found that males consistently performed worse than females on the literacy benchmarks in primary schools. At the secondary level, another study showed that over the period 1975 to 1995 the proportion of 14-year-old males who demonstrated mastery of the reading tests fell from 70 per cent to 66 per cent, while the females attaining mastery changed from 73 per cent to 74 per cent.

In recent years the curriculum has become more contextualised, with a focus on applying knowledge and skills to everyday situations.

Even in mathematics and science there is an increasing demand for verbal reasoning and written communication skills. In the final year of school in some states mathematics students must demonstrate extremely high levels of such skills: the verbally presented, 'in-context' problems must be read, understood, translated into relevant algorithms, solved, then explained and justified.

'This requires sophisticated levels of literacy, including verbal reasoning and written communication. These are areas which girls, on average, seem to have distinct maturational and socialisation advantages,' Dr Cresswell said.

The OECD Programme for International Student Assessment (PISA), a large-scale study that Australia participated in, found that boys' performance on assessment items relating to continuous texts (such as prose and narrative) was not as good as their performance on non-continuous texts (such as timetables and lists). The same study also found that boys do not read for pleasure as much as girls do – 40 per cent of boys said they never read for enjoyment, compared to 25 per cent of girls. Boys' reluctance to read may be a key factor in their lower levels of reading achievement.

PISA also found that boys from a low socioeconomic background were most at risk with regard to reading.



# Report shows changing of socioeconomic status

*There has been a shift in the influence of socioeconomic status on the reading comprehension and mathematics achievement levels of Australian 14-year-olds between 1975 and 1998, with a growing difference between Australian schools along socioeconomic lines.*

This is among the key findings of a recent report in the Longitudinal Surveys of Australian Youth (LSAY) research program.

The study examined student achievement scores on tests of reading comprehension and mathematics from five studies that tested the literacy and numeracy levels of 14-year-olds in Australian schools conducted between 1975 and 1998, as well as trends for all students, and for smaller groups of students. Students' results were discussed through examining averages, medians and the distributions of results and changes over time. Results were reported by socioeconomic status, language background, gender and location.

The report found that while overall achievement levels of students remained relatively stable between 1975 and 1998, notable differences were found between students by socioeconomic status, both at an individual level and between schools.

Socioeconomic status was measured by family occupational group according to the occupation of the student's father. Students were assigned one of four family occupational groups: professional/managerial, clerical/sales/service, trades and production/labourers.

Throughout the 1975-1998 period, students whose parents were employed in professional and managerial occupations had the highest average scores and students whose parents were production workers or labourers had the lowest. The gap between the two groups of students narrowed at an individual level between 1975 and 1998. However, at the same time, the gap in scores widened between schools with higher concentrations of professional parents and all other schools.

'Within the same school a student who comes from a higher socioeconomic group will achieve better test results than a student from a lower socioeconomic group,' said the report's author, Dr Sheldon Rothman. 'Likewise, students attending a

school that has a higher concentration of students from higher socioeconomic groups will also achieve higher scores in both reading and mathematics than students attending schools with lower concentrations of students from higher socioeconomic groups. It is important to note that this school-level influence has increased since 1975.'

These changes in test score results attributable to socioeconomic status are not simple to account for, although a number of policy developments may help explain the trend.

During the 1975-1998 period there have been a number of changes in the organisation of schooling in Australia, which may have an influence on school and student performance. There has been an increase in enrolments in non-government schools; rapidly increasing home prices in some suburbs of major cities have created exclusive residential zones, which in turn have also become exclusive school zones; state education policies that eliminate or reduce school zoning practices have benefited only those with the resources to take advantage of attendance at non-local schools.

As a result of the increase in 'de-zoning' and school-choice programs in Australia, there has been a greater socioeconomic



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## *among Australian schools*

*While overall achievement levels of students remained relatively stable between 1975 and 1998, notable differences were found between students by socioeconomic status, both at an individual level and between schools.*

segmentation of schooling, which is reflected in the transfer of the effects of socioeconomic status from the individual level to the school level.

In a study sample taken in 1975, only 18 per cent of schools enrolled more than half of its students from families in professional and managerial positions, those deemed to be of high socioeconomic status. By 1998, that figure had grown to 41 per cent of schools, indicating a greater concentration of students from high socioeconomic background families. During the same period, there has not been a similar shift in the number of schools with more than half of its students coming from families in the production work/labourer occupational group.

Educational programs that were designed to ameliorate the effects of socioeconomic disadvantage have been changed over the last decade, shifting in emphasis from whole-school approaches to individualised remedial approaches. With the growing segregation of schools along socioeconomic lines, the achievement trends suggest that it may be more appropriate to re-evaluate which programs should target individual students and which should target schools, especially as it appears that school-level socioeconomic status—when viewed as the proportion of higher-SES parents in the school community—may have a greater influence than student-level socioeconomic status on student achievement.

The report also found that there is a strong indication that, as a group, students from homes where English is not the main language spoken have improved their achievement both in reading comprehension and in mathematics. While the average achievement on tests of reading comprehension for students of a non-English speaking background remained lower than the average for students from English speaking backgrounds, their achievement levels improved over the period and the gap between the groups narrowed substantially.

For example, between 1975 and 1998 there was a decrease by about one-half in the difference in reading comprehension between students from homes where English is the main language spoken and students from homes where another language is spoken.

In reading comprehension, 14-year-old students from non-English speaking backgrounds improved their average score by 3.0-scaled score points between 1975 and 1998, while English-language background students maintained their average scores.

During the same period the percentage of 14-year-olds from other-language backgrounds attending government schools more than doubled. These findings indicate that schools have been able to maintain standards in reading comprehension while enrolling more students from other language backgrounds and have been successful in providing educational opportunities and achieving positive outcomes for many of these students from other-language backgrounds.

Other results presented in the report include no significant differences recorded between students from non-metropolitan schools and students from metropolitan schools in both reading comprehension and mathematics; female students have higher achievement scores in reading comprehension but male students scored higher in mathematics; and the widest gaps in average test scores remain between Indigenous and non-Indigenous students for both reading comprehension and mathematics.

Further information is available in the report, *Achievement in Literacy and Numeracy by Australian 14-year-olds, 1975–1998*, by ACER Senior Research Fellow Dr Sheldon Rothman. The report is Research Report Number 29 in the Longitudinal Surveys of Australian Youth (LSAY) research program jointly managed by ACER and the Commonwealth Department of Education, Science and Training (DEST).

Print copies of the report may be purchased from ACER Press Tel: (03) 9835 7447; Fax: (03) 9835 7499; email: [sales@acer.edu.au](mailto:sales@acer.edu.au)

The report can be downloaded free of charge from the ACER web site at [www.acer.edu.au](http://www.acer.edu.au).

# National Awards for Quality Schooling

ACER is working with the Australian College of Educators, on behalf of the Commonwealth Department of Education, Science and Training, to implement a new initiative to provide recognition to teachers and schools through a national awards system.

The National Awards for Quality Schooling (NAQS) will see one million dollars in prize money awarded to Australian schools, teachers and school leaders for outstanding contributions to schooling. The Commonwealth Government initiative will recognise and support schools and teachers committed to sustainable school improvement.



'The NAQS provides schools with the opportunity to tell the story of their school improvement project and be recognised and regarded at a national level,' said Peter Weddell, the NAQS Project Coordinator at the Australian College of Educators.

The award scheme will reward whole schools, teams of teachers, individual teachers and school leaders.

Prizes available include 12 national prizes of \$24 000 for whole schools and teams of teachers; 26 national prizes of \$12 000 for individual teachers and school leaders; and 50 minor prizes of \$8000 for individual teachers, teams of teachers, school leaders and whole schools.

Applications can come from the pre-primary, primary and secondary levels of schooling in government, Catholic and independent school sectors. For 2003 the Priority Areas for school improvement projects are: Literacy and Numeracy, Safe School Environments, Values Education, School Leadership and Innovation in Science, Mathematics and Technology.

Dr Lawrence Ingvarson and Ms Elizabeth Kleinhenz from ACER have been responsible for developing the judging strategy for the awards. They have developed guidelines for schools to use in describing their school improvement efforts and criteria that indicate how their applications will be scored. ACER will train a team of peer-assessors, with expertise relevant to the priority areas, to use these criteria in selecting a short list of applications. A second judging panel, also trained by ACER staff, will use the same list of criteria to assess these applications and select a final list of applications that will gain awards.

Lawrence Ingvarson, ACER's Research Director for Teaching and Learning, points out that these awards are one way to recognise teachers who are making a difference in terms of student learning outcomes. The process will provide a fair, transparent and rigorous process to determine Award winners.

'There are many excellent teachers around, but too few mechanisms for giving teachers recognition for the value of their work.'

All applications for the awards will be judged at a national level and must be submitted by 31 July 2003. Information and application requirements can be accessed via the National Quality Schooling Framework (NQS) at [www.nqs.edu.au](http://www.nqs.edu.au)

The awards will be presented by the Commonwealth Minister for Education, Science and Training, the Hon Dr Brendan Nelson MP at a ceremony to be held in Term 4 2003.

For further information phone freecall 1800 131 323 email [NAQS@austcolled.com.au](mailto:NAQS@austcolled.com.au) or visit the web site at [www.nqs.edu.au](http://www.nqs.edu.au).

# Improving the foundations for lifelong learning

What can secondary schools do to develop lifelong learning skills?

Research organised around this question has the potential to help transform the rhetoric surrounding lifelong learning into programs and strategies that schools can implement.

ACER conducted research into lifelong learning in 1999-2000 to identify key educational concepts that are argued to provide the foundations for lifelong learning. This work resulted in an 'issues' paper: *The Era of Lifelong Learning: Implications for Secondary Schools*.

Following on from that earlier study, ACER has produced a second report *Engaging Secondary Students in Lifelong Learning* that extends the research in a practical way by providing a set of case studies undertaken in a number of secondary schools in South Australia and Victoria. The report identifies ways that the foundations for lifelong learning can be built in secondary schools.

*Engaging Secondary Students in Lifelong Learning* can be downloaded from the ACER web site at [www.acer.edu.au](http://www.acer.edu.au) or can be purchased from ACER Press phone (03) 9835 7447 or email [sales@acer.edu.au](mailto:sales@acer.edu.au)



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## A Good Start to Numeracy

ACER researchers recently completed a literature review of the research and practice in early childhood numeracy. *A Good Start to Numeracy* examines research projects into effective early childhood numeracy practices that have been conducted in the last ten years, both within Australia and overseas, and reports key findings related to numeracy at home, numeracy in the pre-school and numeracy in the early years of school.

The report also identifies effective numeracy strategies, called 'sandpit suggestions' from research and practice in early childhood for parents, teachers and policy makers.

*A Good Start to Numeracy* was undertaken as part of the wider Project Good Start – a longitudinal study of the practices and learning experiences that support early numeracy development. ACER is conducting Project Good Start with funding provided by the Commonwealth. The project will investigate programs and strategies and factors affecting numeracy as children progress from a pre-school setting into the first year of formal schooling. It will report in 2004.

Project Good Start is funded by the Commonwealth Department of Education, Science and Training through the Numeracy Research and Development Initiative.

*A Good Start to Numeracy* can be downloaded from the DEST web site at [www.dest.gov.au/schools/publications/subject.htm#Numeracy](http://www.dest.gov.au/schools/publications/subject.htm#Numeracy)



## ACER Research Conference 2003

### Building Teacher Quality What does the research tell us?

ACER's annual research conference will this year focus on the theme of Building Teacher Quality. The conference will take place in Melbourne from 19-21 October.

The conference will bring together key researchers, policy makers, school administrators and teachers, to review and discuss research that suggests answers to a number of critical questions, including:

- What do we know about how to reinforce the quality and status of the teaching profession?
- What are the links between the development of professional standards and attracting, preparing and retaining quality teachers?
- Can teacher performance be assessed reliably and validly?

Plenary speakers include:

- Ralph Tabberer, Chief Executive, Teacher Training Agency, United Kingdom
- Linda Darling-Hammond, Charles E. Ducommun Professor of Teaching and Teacher Education; Stanford University, United States
- Mari Pearlman, Vice-President, Division of Teaching and Learning, Educational Testing Service, United States.

For further information on the conference, visit the ACER web site at [www.acer.edu.au](http://www.acer.edu.au) or contact the Centre for Professional Learning on (03) 9835 7403

## Monash University – ACER

Centre for the Economics of Education and Training (CEET)



### CEET National Conference 2003

Strategic Directions for VET  
Monday September 15  
Ascot House, 50 Fenton Street  
Ascot Vale, Melbourne  
Contact: [michael.long@education.monash.edu.au](mailto:michael.long@education.monash.edu.au)

### Reports from four recent CEET research projects are now available:

#### Job openings in the knowledge economy

The report classifies occupations according to whether they are advantaged by globalisation and technological change, relatively insulated from it, or vulnerable. Projected job openings and the implications for VET are discussed.

Shah, C & Burke G 2003, *Future job openings: Australia in the knowledge economy*, CEET Working Paper 48, [www.education.monash.edu.au/centres/ceet/WP48.pdf](http://www.education.monash.edu.au/centres/ceet/WP48.pdf)  
Contact: [chandra.shah@education.monash.edu.au](mailto:chandra.shah@education.monash.edu.au)

#### ACCI's User Choice Proposals

User Choice policy allows employers and their apprentices/trainees to choose a training provider and to negotiate the timing, content and mode of delivery of training.

Ferrier, F. & Selby Smith, C. 2003, *An investigation of ACCI's User Choice Proposals*, Working Paper 47, [www.education.monash.edu.au/centres/ceet/WP47.pdf](http://www.education.monash.edu.au/centres/ceet/WP47.pdf) examines these proposals.

Contact: [fran.ferrier@education.monash.edu.au](mailto:fran.ferrier@education.monash.edu.au)

#### Lifelong Learning and Employment

The report analyses the views of key stakeholders presented at a CEET symposium about lifelong learning and employment.

Selby Smith, C. & Ferrier, F. & 2003, *Lifelong Learning: Proceedings of a Symposium 16 May 2002*

[www.education.monash.edu.au/centres/ceet/](http://www.education.monash.edu.au/centres/ceet/)  
Contact: [chris.selbysmith@buseco.monash.edu.au](mailto:chris.selbysmith@buseco.monash.edu.au)

#### VET and the National Innovation System

The study considers the relationship between the VET sector and emerging industries.

Ferrier, F., Trood, C. & Whittingham, K. 2003, *Going boldly into the Future: A series of case studies of co-operative research centres and their relationship with the VET sector*, NCVER, [www.ncver.edu.au/research/proj/nr9036cs.pdf](http://www.ncver.edu.au/research/proj/nr9036cs.pdf)  
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