Assessment Research Centre

Annual Report 2011

THE UNIVERSITY OF MELBOURNE

GRADUATE SCHOOLS

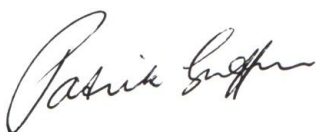MELBOURNE GRADUATE SCHOOL OF EDUCATION

Contents

1.0 Introduction

The Assessment Research Centre (ARC) was established in 1989 at the Royal Melbourne Institute of Technology (RMIT) and relocated in November 1996 to the Faculty of Education at the University of Melbourne. From its inception, the Centre established a strong research culture and an international reputation for its work in assessment research, development and teaching. In 1997, the Centre, in collaboration with the New South Wales TAFE Assessment Centre, was funded by the Australian National Training Authority (ANTA) to form the Centre for Vocational Assessment Research (CVAR). The Centre was formally recognised by the University of Melbourne and established as a university collaborative centre in July 1997. In 1999, the links with the NSW TAFE Assessment Centre were relinquished and the Centre continued as an independent body outside the ANTA framework.

The ARC's mission is to promote improvement in the fields of assessment, reporting and applied measurement. To achieve this mission, the Centre undertakes research, consultancies and development projects, and participates in higher and vocational training in both award and non-award programs. It has a strong focus on publication and materials development.

A national and international program of research, development and teaching has been pursued, with activities undertaken within Australasia, Europe, North and Central America, Asia and Southern Africa. Projects have included research and development studies in schools, higher education, vocational education and industry. Collaborative projects have been established with universities, research organisations and government departments in New Zealand, Europe, Vietnam, Hong Kong, Singapore, the Philippines, Southern Africa, Costa Rica and the United States, as well as in Australia with organisations from Queensland, Western Australia, New South Wales, Victoria and Tasmania, reflecting the truly national and international nature of the Centre's profile and emphasis. Nationally competitive projects have been successfully won through tender procedures and the Centre has retained its status as a recognised provider of training for non-award courses.

The Centre's teaching program has attracted postgraduate students from Victoria and other Australian states as well as from Hong Kong, Vietnam, Indonesia, Bangladesh, Pakistan, Germany, Austria, the Philippines, Iran, Chile, Pakistan, Malaysia and the Netherlands. In 2011, Centre personnel included 23 research and administration staff and a new group of graduate research students. This maintained a critical mass of research staff and enabled some consolidation of the Centre's research agenda. Following their relocation at the end of 2010, staff and students have settled into a new communal office space at 100 Leicester St, in close proximity to their colleagues in the Graduate School of Education.

Professor Patrick Griffin
Director, Assessment Research Centre

2.0   Mission and Philosophy

The Centre focuses on improving assessment and reporting through a four-step process of research, publication, development and training. These provide the framework for strategic planning by the Centre and guide its core business as well as its link to the University's mission. Research that leads to change, strategically affects change, or sets up the basis for change in assessment, forms the focus of the Centre's work.

Research

The Centre focuses on research either in or using assessment. All activities and projects have a research focus and emphasise assessment or evaluation models based on assessment. The Centre's research program is its basic tool for educational change. Assessment research is regarded as a way of testing ideas and of checking the theoretical and practical nature of new theories and approaches.

Publications

Through publishing research outcomes in a variety of media to cater for a wide audience, the Centre is able to disseminate its ideas and procedures to affect the change process.

Development

The development strategies employed by the Centre translate research outcomes into materials that practitioners can evaluate and use. The end user is one who can judge the practicality of research outcomes and their application potential. This is the basis of the change practices. Therefore, the development of materials is also given priority in each project.

Training

Each project at the development stage incorporates plans for a series of seminars, workshops, publications and other means of dissemination. The Centre conducts a series of short-course training programs in assessment research and related fields. Graduate supervision and teaching of award and non-award courses complements the Centre's research program by having graduates actively participate in components of the Centre's research agenda.

3.0   Personnel

Director and Chair of Education (Assessment)

Professor Patrick Griffin, B.Sc., M.Ed., T.S.T.C., Ph.D., F.A.C.E.

Professorial Fellows

Professor Ray J. Adams
B.Sc. (Hons), DipEd., M.Ed., Ph.D., F.A.C.E.

Professor Ken Ross
B. Sc, Dip. Ed, B. Ed., M. Ed,
Dip Survey Sampling, Ph.D.

Associate Professors

Assoc Prof Margaret L Wu, B.Sc (Hons)
Grad Dip (Computer Studies) DipEd. M.Ed,
Ph.D

Assoc Prof Esther Care
Deputy Director
B.A., B.Ed., Grad. Dip. Applied Psych., Ph.D.,
Grad Cert Univ Teach

Research Fellows

Dr. Myvan Bui

Dr. Nguyen Thi Kim Cuc

Dr. Suzanne Rice

Dr. Jim Pettigrew

Dr. Kerry Woods

Dr. Nathan P Zoanetti

Research Officers

Nafisa Awwal

Bernadette Coles-Janess

Judy Crigan

Roz Mountain

Frank Van Cappelle

Masa Pavlovic

Pam Robertson

Professional Staff

Ben Lawless
J-F Didier Hin

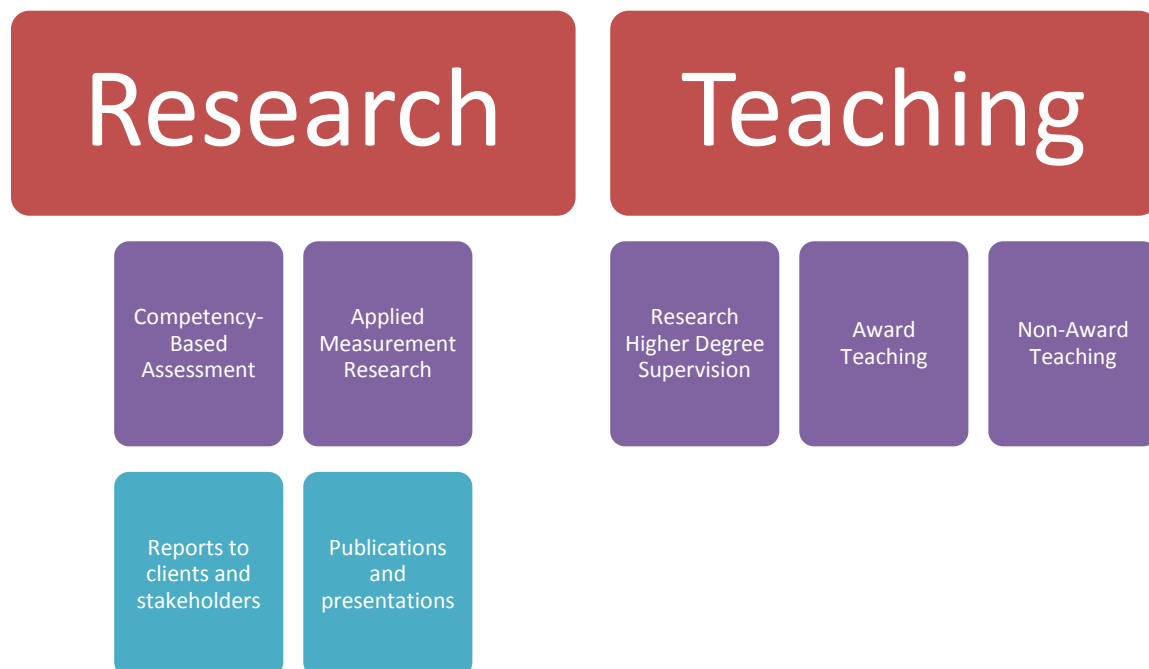Pam Firth
Hilary Slater
Pauline Holland

4.0   Associates

Ms Sharon Adams

Dr Arto Ahonen

Mr Jeremy Beard

Mr Greg Butler

Ms Karen Cain

Dr Elsie Campos

Ms Kathleen Comfort

Mr Wayne Craig

Dr Dinh, Thi Kim Thoa

Ms Do, Hanh Nga

Mr Duong, Mong Ha

Mr Garry Embry

Mr Darrell Fraser

Ms Katherine Henderson

Ms Doris Huminicki

Professor Richard James

Professor Stephen Lamb

Professor Le, Ngoc Tra

Ms Le, Thi Hoang Ha

Ms Rosemary McLoughlin

Mr Andy Mak

Professor Geoff Masters

Professor Magdelena Mok

Ms Leanne Murray

Assoc. Prof Nguyen, Phuong Nga

Ms Nguyen , Thi Tuyet

Dr Carl Parsons

Ms Pierina Perri

Ms Judy Petch

Mr Pham, Xuan Thanh

Ms Shiralee Poed

Dr Poon Chew Leng

Ms Katrina Reynen

Ms Lee Reynolds

Dr Martina Roth

Dr Diederik Schonau

Mr Paul Sedunary

Dr Patricia Smith

Mr Robert Stephens

Mr Mark Tainsh

Mr Truong, Cong Thanh

Ms Karen Underwood

Dr Ethel Valenzuela

Mr Anthony Zanderigo

5.0 Engagement and Partnerships

Research

Competency-Based Assessment

Applied Measurement Research

Reports to clients and stakeholders

Publications and presentations

Teaching

Research Higher Degree Supervision

Award Teaching

Non-Award Teaching

In 2005 the University appointed a Deputy Vice-Chancellor for Innovation and Development with a brief to concentrate on the University's function in the wider community. In 2006 that function was given further recognition through the announcement of Knowledge Transfer as an important feature of the Melbourne Model. Knowledge Transfer was defined as "a two-way mutually beneficial interaction between the University and non-academic sectors with direct links to teaching and learning and research, and informed by social and global issues." Under the new terminology of "Engagement and Partnerships," introduced in 2011, the University continues its commitment to mutually beneficial interaction with the wider community, and the ARC fulfils this commitment through its wide range of research and teaching programs involving partnerships with state and federal governments, the private sector and the broader community. The figure above illustrates how the ARC's mission translates research into teaching and development and how it engages with a range of external organisations locally and internationally. Details of the Centre's various research projects and teaching programs are provided in the sections that follow.

6.0   Research Programs

6.1   Regional Network Evaluation

Project team

P. Griffin, E. Care, S. Rice, C. Nguyen, K. Woods, R. Mountain, F. Van Cappelle

Duration

2010-2014

Summary

The Victorian Department of Education and Early Childhood Development (DEECD) moved in 2009 to an educational provision model in which government schools are grouped into 70 local regional networks, which form the units of accountability within the system. Each network has a Regional Network Leader (RNL) who works with school principals and is responsible for the implementation of key government policy initiatives designed to improve provision and lift student participation and outcomes. The Regional Network Evaluation project examines how the model works in regions across the state, identifying strengths and limitations of the model, factors central to the successful working of the model, and ways in which contextual and systemic factors interact to determine the acceptance and utility of the model at the school level.

The project has a strong formative evaluation component. Staff from the project team work with Regional Network Leaders to provide ongoing data analysis, feedback and advice on the effectiveness of their network's implementation of selected "Blueprint" initiatives over five years. The first workshop with RNLs to establish network goals and objectives was conducted in February 2010.

Funding source

Department of Education and Early Childhood Development, Victoria.

Publications

Griffin, P., Rice, S., & McPherson, J. (2010). *Regional Network Evaluation Project: Phase 1, Part 1: Interim Context Report.* Report to the Victorian Department of Education and Early Childhood Development.

Rice, S., Griffin, P., Mountain, R., Van Cappelle, F., & Woods, K. (2010). *Regional Network Evaluation 2010-2014: Phase 1: Baselines.* Report to the Victorian Department of Education and Early Childhood Development.

Griffin, P., Woods, K., Nguyen, C., Mountain, R., & Wood, K. (2012). *Regional Network Evaluation 2010-2014: Phase 2, Interim Report*. Report to the Victorian Department of Education and Early Childhood Development.

Presentations

Rice, S., Griffin, P., Fraser, D., & Petch, J. (2010). *Forms of School Collaboration to Improve Student Outcomes: Past Experiences and the Victorian Network Model.* Paper presented at the annual conference of the Australian Association for Research in Education, Melbourne, Victoria, November 28th – December 2nd.

Griffin, P. & Rice, S. (2010). *Measuring School Network Quality: Development of Indicators to Determine How Well a School Network is Functioning.* Paper presented at the annual conference of the Australian Association for Research in Education, Melbourne, Victoria, November 28th – December 2nd.

Mountain, R., Rice, S., Griffin, P., & Woods, K. (2010). *Factors Facilitating the Functioning of School Networks in Victoria.* Paper presented at the annual conference of the Australian Association for Research in Education, Melbourne, Victoria, November 28th – December 2nd.

6.2   The Second Higher Education Project (Vietnam)

Project team

P. Griffin, C. Nguyen, R. James, E. Care

Duration

2009-2012

Summary

The Evaluation of the Vietnam Second Higher Education project (HEP2) had several objectives in its remit from the Vietnamese government.

First, the study examined the effectiveness of the integrated Capacity Building and Policy Development Program for government staff involved in higher education sector management.

Second, the study examined the effectiveness of the Teaching Research and Innovation Grant (TRIG) scheme in which 22 universities received more than $US60 million in funding. The criteria included:

- Improvement in teaching and research infrastructure
- Use of award and non-award professional training for staff
- Support infrastructure for research projects and the effectiveness of international and national cooperation in teaching and research

Third, the evaluation study examined the efficiency and effectiveness of the project's management, monitoring and evaluation.

As part of the overall program, the evaluation team provided training in project monitoring and evaluation for key staff from universities and from the Vietnam Ministry of Education & Training (MoET). The evaluation involves both monitoring and impact evaluation.

Funding source

The Vietnam Ministry of Education & Training (MoET) and the World Bank

6.3   Western Metropolitan Region Blueprint Evaluation

Project team

P. Griffin, E. Care, J. Pettigrew, S. Rice, C. Nguyen, K. Woods

Duration

2010 - 2011

Summary

This study evaluated a reform agenda developed by the Western Metropolitan Region (WMR) of DEECD and outlined in the *Western Metropolitan Region Blueprint for School Improvement*. The agenda aimed to improve the learning outcomes and well-being of all government school students in the region by transforming the instructional and leadership practice of teachers, school leaders and regional staff. It was supported by two key system documents: the *Blueprint for Education and Early Childhood Development* outlining policy, and *School Improvement: A Theory of Action*, a model of school improvement.

The project applied a formative evaluation approach to the various regional initiatives outlined in the WMR *Blueprint*. In particular, it used the *Scan of Tools* model to assess the progress of WMR schools towards the four key reform goals of improved student literacy, improved student numeracy, quality student-engaging secondary provision, and a positive learning environment in every school and classroom.

A key focus of the project was to work alongside regional staff to identify goals, needs and strategies for reform implementation. There was ongoing feedback throughout the project on the progress made towards reform and on factors underpinning successful change. A range of tools, including surveys, focus groups, problem and benefits studies and interviews with regional staff, principals, teachers, students, parents and relevant community members were used to monitor and evaluate implementation of plans and to provide feedback facilitating improvement.

Funding source

Western Metropolitan Regional Office, DEECD, Victoria.

Publications

Rice, S., Pettigrew, J., & Griffin, P. (2010). *Western Metropolitan Region Blueprint Evaluation: Phase 1 Input Analysis.* Report to the Western Metropolitan Region of the Victorian Department of Education and Early Childhood Development.

Pettigrew, J., Rice, S., & Griffin, P. (2010). *Western Metropolitan Region Blueprint Evaluation: Phase 1 Part 1: Context Analysis.* Report to the Western Metropolitan Region of the Victorian Department of Education and Early Childhood Development.

6.4 Abilities Based Learning and Education Support (ABLES) Research

Project team

P. Griffin, K. Woods, N. Awwal, R. Mountain, I. Claridge (DEECD), K. Arcaro (DEECD), D. Billimoria (DEECD), K. Underwood (DEECD)

Duration

2009-2012

Summary

The aim of the ABLES project is to undertake research to inform the development of a learning support and funding model for children and young people whose learning is supported by DEECD's Program for Students with Disabilities. The objectives of the project are:

- To identify the program support and educational interventions that students with additional needs require in order to optimise their learning
- To inform teachers' planning and delivery of well-targeted teaching to scaffold the learning of their students
- To support system-level decisions about the resourcing of learning programs for students with intellectual disabilities

In 2009, as a foundation to the research, the Students With Additional Needs (SWANs) online materials were used by teachers who worked within the collaborative environment of a team of professional colleagues to assess learning progress for their students, set targets for student learning and record their decisions about appropriate teaching interventions for their students. That work was assembled into a package of teaching advice and recommendations that can be drawn upon by all teachers. In 2010, the project team used this collated information in a large-scale extension of the research. The information has been assembled into a survey designed to evaluate the usefulness of these special education learning interventions in both mainstream and special education schools.

The project is a partnership between the Student Wellbeing Division of DEECD and the Assessment Research Centre and is supported by the DEECD Research Panel.

Funding source

Student Wellbeing Division, DEECD, Victoria.

Publications

Griffin, P., Woods, K., & Mountain, R. (2010). *The Abilities Based Learning and Support Model Project: Development of an Abilities Index: Stage One Report.* Report to the Department of Education and Early Childhood Development.

Woods, K., Coles-Janess, B., & Roberts, E. (2010b). Mining the Gold: Assessing students by ability, not disability. *Teacher*, April 2010, 34-37.

Woods, K. (2010). *The design and validation of measures of communication and literacy to support the instruction of students with learning disabilities*. PhD thesis, The University of Melbourne.

Presentations

Woods, K. & Griffin, P. (2010). *Teachers' Use of Developmental Assessment to Support Communication Proficiency for Students with Additional Needs*. Paper presented at the AARE International Education Research Conference 2010, Melbourne, Australia.

6.5 Assessment and Learning Partnerships (ALP)

Project team

P. Griffin, E. Care, M. Pavlovic, P. Robertson, J. Crigan, P. Holland, P. Robertson, N. Awwal, L. Murray (CEOM), R. McLoughlin (CEOM), P. Sedunary (CEOM) K. Cain (DEECD), R. Stephens (DEECD), W. Craig (DEECD),

Duration

2010-2013

Summary

This cluster of projects is an extension of investigations into the use of student assessment data by Professional Learning Teams in schools, which have been undertaken since 2004. The projects examine teachers' collaborative use of assessment data to inform teaching. They investigate the implications of shifting from a deficit or remedial model of teaching to a developmental approach to improving student outcomes. Based on the work of Lev Vygotsky, the developmental approach focuses on students' readiness to learn and on individual differences in their capacity to respond to scaffolding of their learning. The expansion includes schools in Gippsland and the Northern, Eastern and Southern Metropolitan Regions. The research component is designed to examine teachers' ability to use a team approach to working with student assessment data to make decisions about the teaching of literacy, numeracy and problem-solving skills for students in schools.

This project is the subject of an Australian Research Council Linkage Project grant (LP 0991123), with chief investigators from the University of Melbourne and partner investigators from the Catholic Education Office Melbourne and DEECD Victoria.

Drawing on the materials developed in this project, the University of Melbourne and DEECD have collaborated to offer the Specialist Certificate in Leadership of Assessment Practice. This course builds upon current professional development initiatives. It reflects a commitment to support the building of knowledge and capacity of both leaders and teachers to effectively use assessment data in identifying the learning needs of students.

Publications

Griffin, P., Murray, L., Care, E., Thomas, A., & Perri, P. (2010). Developmental Assessment: Lifting Literacy through Professional Learning Teams. *Assessment in Education: Principles, Policy & Practice*, 17(4), 383-397.

Presentations

Care, E. (2010). *Teachers' use of data to support student learning*. Presented at the Shared vision: An Australian curriculum P-12, 28-30 April, Brisbane.

Griffin, P. & Care, E. (2010). Assessment and learning partnerships: Conceptual framework. Presented at the International Conference on Learning, 6-9 July 2010, Hong Kong Institute of Education, Hong Kong.

Griffin, P. & Care, E. (2011). Literacy and Numeracy development. Presented at the Smarter Schools National Literacy and Numeracy Forum, 10-11 November 2011, Brisbane.

6.6 Assessment & Teaching of 21st Century Skills

Project team

This project is managed by the University of Melbourne under a contract between the University and Cisco, Intel and Microsoft. This is an international project with distributed leadership. At the University of Melbourne the project team consists of: P. Griffin, E. Care, B. McGaw, P. Firth, M. Bui, P. Holland, N. Awwal, A. Vista and N. Zoanetti

Duration

2009-2012

Summary

The purposes of the project are set out in the "Call to Action" issued by Cisco, Intel and Microsoft at the Learning and Technology World Forum in London on 13 January 2009. These are to:

- Mobilise international educational, political and business communities to make the transformation of educational assessment and, hence, instructional practice a global priority
- Specify in measurable terms high-priority understanding and skills needed by productive and creative workers and citizens of the 21st century
- Identify methodological and technological barriers to ICT-based assessment
- Develop and pilot new assessment methodologies
- Examine and recommend innovative ICT-enabled, classroom-based learning environments and formative assessments that support the development of 21st century skills

Publications

Griffin, P., McGaw, B., & Care, E., Eds. (2012*). Assessment and Teaching of 21st Century Skills*. Dordrecht, Springer.

Griffin, P. (2011). Lead the Change Series: Q&A with Patrick Griffin. AERA Educational Change Special Interest Group, Issue No. 8 October 2011, 1-6.

Presentations

Education World Forum, London, January 2011

ETS, Princeton Futures Conference, March 2011

AERA, New Orleans, April 2011

Asia Pacific Ministerial Forum, UNESCO, Bangkok, July 2011

Royal Brunei Futures Conference, Dar es Salaam, Brunei, July 2011

EERA Conference, Berlin, September 2011

University of Bremen, September 2011

GELP, Seattle, November 2011

AARE, Hobart, November 2011

6.7   P-2 Literacy Assessment

Project team

E. Care, J. Crigan, H. Tsurutani

Duration

2010-2012

Summary

This project was undertaken for the Catholic Education Office. In its first phase it involved the preparation of a paper outlining potential directions for Prep to Grade 2 assessment for CEO schools in the context of contemporary understandings of literacy learning. This was followed by the analysis and review of current assessment tools and processes used by schools in order to evaluate the quality and breadth of the information provided in the context of school and system needs. Data was collected by visits to schools in the four Victorian dioceses. These included schools in urban and

rural areas, and across different demographic criteria. In its third phase, the project involves analysis of current practices in the context of stated school and system needs, and in the context of current pedagogical and assessment practices in Australia and overseas. Conclusion of these first three phases of the project is scheduled for late 2012.

Funding source

Catholic Education Office, Melbourne, Victoria.

Publications

Care, E., Crigan, J., & Griffin, P. (2010). *Analysis of School Reporting, Assessment Tools and Processes Report #1.* Report to the Catholic Education Office, Victoria.

Care, E., Tsurutani, H., Crigan, J., & Griffin, P. (2010). *CEO P-2 Literacy Assessment Review Phase 2 Report*, Report to the Catholic Education Office, Victoria.

6.8   Creative Problem Solving

Project team

P. Griffin, M. Pavlovic, J. Pettigrew, N. Awwal, M. Bui

Duration

1998-ongoing

Summary

This project is undertaken in collaboration with the North Shore Development and Coaching Centre (NSDC Pty Ltd) and its colleges. Items along the creative problem solving strands of classification, application and reasoning are designed by the Assessment Research Centre to test the problem-solving skills of students in years 3 to 8 across Australia. Testing is held in late October and awards are presented to top students in early November. The items assess student performance in different key steps in the problem-solving process, in situations that are both familiar and unfamiliar to the students. Reports on the performance, together with constructive feedback, are given to each participant after the test. Initially the project was supported by an ARC Strategic Partnership for Industry Research Training (SPIRT) grant, partnered by NSDC Pty Ltd.

The online system is designed to process response sheets automatically using the information contained in the item bank about tests and items. The item bank is renewed following each year of testing. As a result of this system, responses are processed and reports are produced in a short time.

Funding source

Australian Research Council Special Program for Industry Research Training (SPIRT); North Shore Development and Coaching Centre.

Publications

Zoanetti, N. P. (2010). Interactive computer-based assessment tasks: How problem-solving process data can inform instruction. *Australasian Journal of Educational Technology, 26*(5): 585-606.

Zoanetti, N. P. (2010). *Applications of item response theory to model computer-based problem solving assessments.* PhD thesis, The University of Melbourne.

Presentations

Lai, K., Griffin, P., Mak, A., Wu, M., & Dulhunty, M. (2001). *Modelling strategies in problem solving.* Paper presented at the Annual Conference of the Australian Association for Research in Education, 2-6 December 2001, Perth.

6.1.10 General Ability, English and Mathematics (GEM) tests

Project team

M. Pavlovic, J. Pettigrew, N. Awwal, M. Bui, P. Griffin

Duration

1999-ongoing

Summary

Tests have been designed to measure general ability, English and mathematics (GEM). They are administered early in March each year, initially to students in years 4, 5 and 6 in colleges run by the North Shore Development and Coaching Centre (NSDC Pty. Ltd.) throughout Australia. Each year the tests attract a number of additional students. The aim of the tests is to monitor student progress in the three subject areas. The multiple-choice items in the tests are designed and scored by the Assessment Research Centre. Reports containing overall individual performance in each subject are given to each participant after the competition, including basic statistics on inter-student and intra-student comparisons. Constructive feedback is also given to the student.

A calibrated item bank is constructed for this testing program, which has been in operation since 1999. All items used in the testing program are systematically coded, categorised and calibrated onto one continuum to facilitate a strategic and informed approach to test construction. The responses for each item are combined to provide a complete history of item usage for the calibration process.

Funding Source

North Shore Development and Coaching Centre.

6.1.11   Literacy Assessment Project

Project team

P. Griffin, E. Care, J. Pettigrew, P. Robertson, J. Crigan

Duration

2004-ongoing

Summary

This project began in 2004, initiated by the Catholic Education Office in partnership with the University of Melbourne, in response to primary schools seeking clear reading and writing assessment advice beyond that established for years Prep-2. The goals of the project were to:

- Assist schools to use effective mainstream assessment practices that inform instruction at the students' point of need
- Assist schools to use more effective focused teaching and ongoing monitoring strategies
- Develop suitable support materials for and/or advice about mainstream reading assessments

Literacy assessments have been conducted twice each year since 2004, providing a growing database of equated tests, and individual student data to schools for targeted teaching. The project relies heavily on professional learning teams of literacy coordinators who have worked to investigate and extend their knowledge of teaching strategies for students at different reading and comprehension levels. Analyses of the data have been used to develop and inform a common progression of reading development of ten levels upon which individual student progress can be plotted. This project formed the basis for the Assessment and Learning Partnerships Project.

Funding source

Catholic Education Office, Melbourne, Victoria.

Publications

Griffin, P., Murray, L., Care, E., Thomas, A., & Perri, P. (2010). Developmental Assessment: Lifting Literacy through Professional Learning Teams. *Assessment in Education: Principles, Policy & Practice*, 17(4), 383-397.

Griffin, P., Care, E. & Pettigrew, J. (2010). *Literacy Assessment Project: 2009 Report.* Report submitted to Catholic Education Office Melbourne.

Griffin, P. (2006). Innovation in The Classroom. *EQ Australia*. Summer 2006, 6-7.

Griffin, P., Nichols, G., Murray, L., Vogl, A., & Barling, J. (2006). Effective Use of Assessment to improve Meaning Making in Years 3 and 4 students. *Learning Matters*. 11 (2), 58-61.

6.1.12   National Research Coordinator – Assessment and Teaching of 21st Century Skills – Australia

Project team

E. Care, M. Bui, J. Pettigrew

Duration

2010-2011

Summary

The Assessment and Teaching of 21st Century Skills (ATC21S) project aims to develop and test assessment tools (or tasks) as prototypes for use in the classroom. The prototypes will be in the public domain and able to be used freely by others in the development of assessment tasks or tests. The ATC21S project is sponsored by Cisco, Intel and Microsoft and the governments of Australia, Finland, Singapore, the USA, the Netherlands and Costa Rica. The Australian arm of the project is coordinated by the School Improvement and Transparency Branch, Department of Education and Workplace Relations, and the research activity is managed by the University of Melbourne. This project is designed to identify and define skills relevant to navigating the current century, and to develop ways to measure the skills using information technology-based tasks and tests. Schools from the states of Victoria, Tasmania, Queensland, Western Australia and New South Wales are participating.

Funding source

Department of Education, Employment and Workplace Relations, Canberra.

6.1.13 Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) Project

Project team

N. Zoanetti, P. Griffin

Duration

2007-2011

Summary

This project demonstrates the application of the Rasch model to a multiple choice assessment of intrapartumfetal surveillance content knowledge. Early evidence of construct validity has been demonstrated through the correspondence between the empirically derived interpretation of the variable and that posited *a priori* by subject matter experts. Evaluation of a number of quantitative indices of item and test quality revealed several methods for efficiently improving the quality of subsequent test forms. Another key component of this project has been the implementation of an ongoing program of item writing. A panel of item writers has been improving ineffective items and developing new items in response to the ongoing analyses. Further validation studies have also been identified for when the key targets of psychometric quality such as item quality, scale unidimensionality and test reliability have been attained.

A custom assessment feedback report known as a Graphical Item Map has been developed and is now provided to all practitioners following their assessment. This report presents an individual's strengths and weaknesses across several aspects of fetal surveillance knowledge and thereby helps each practitioner to target their education after each test.

Funding source

Publications

Zoanetti, N., Griffin, P., Beaves, M., & Wallace, E. (2009). Rasch scaling procedures for informing development of a valid Fetal Surveillance Education Program multiple-choice assessment. *BMC Medical Education, 9(1),* 20.

7.0   Supervision

7.1 2011 Research Higher Degree Students

PhD

Name	Thesis	Status
Berezner, Alla	A comparison of estimation techniques for multi-level IRT models	Continuing
Chan, Man Ching Esther	Development of early years literacy assessment tools	Continuing
Coles-Janess, Bernadette	Profiling developmental standards of learning for students with intellectual disabilities	Continuing
Duong, Thu Mai	The development and validation of an instrument to measure Vietnamese EFL students' process-oriented writing competence	Continuing
Fear, Elizabeth Anne	Auditory processing, literacy and behaviour in secondary students (the effect of teacher professional development and specific strategies)	Continuing
Gebhardt, Eveline	Linking item response theory and structural equation modelling	Continuing
Keshavarz-Mehr, Negar	The critical role of subjectivity at item level in a test of spoken English: Variability in rater estimations	Completed
Morda, Romana Rosa	Leadership - is it a gift? Exploring the relationship between giftedness and leadership in preschool children	Continuing
Nicholson, Patricia	An exploration of factors that influence the judgement of the instrument - nurse's performance in the operating suite	Completed
Pacyga, Barbara	A psychometric investigation into the structure and stability of interests in young children	Continuing
Roberts, Eileen	The design and validation of a cognitive and emotion assessment instrument for students with additional learning needs	Continuing
Ryan, Maree Jean Elizabeth	The emotional intelligence traits of academically achieving and under achieving gifted and mainstream students	Continuing
Shah, Kamal Syed Ud Din	Mathematics Grade VIII achievement in Pakistan: A Comparison of the national curriculum outcomes with student performance in the NEAS Assessment: Policy and practice	Continuing
Tran, Hoai Phuong	A validation study on the university entrance English test to the Vietnam National University	Continuing
Van Cappelle, Frank	Impact of data visualization on evidence-based education policy decision making	Continuing
Vista, Alvin	Investigating group differences in achievement and reasoning ability between ESB and NESB students through DIF and moderated regression analyses	Continuing

Pavlovic, Masa	Linking effective teaching strategies used within the Assessment and Learning Partnerships framework to improved student outcomes in numeracy	Continuing
Wood, Karen Joy	Intelligence, interests and personality as predictors of academic success across the knowledge domains	Continuing
Zakaria, Zuraimi	A longitudinal investigation of the interplay between teacher beliefs, instructional practices and professional development	Continuing

Doctorate in Education

Name	Thesis	Status
Arratia Martinez, Alejandra	Teachers' perception about their own learning in a developmental pathway: The influence of a collaborative use of assessment data to inform teaching	Continuing
Poulton, Janette	Assessing Philosophy for Children	Completed

Master of Assessment & Evaluation

Name	Thesis	Status
Quan, Patricia	To what extent is Principal engagement as demonstrated using the 5 Sergiovianni domains lead to effective PLTs?	Continuing
Robertson, Pam	Measuring Professional Learning Team Functioning	Continuing
Serpell, Jonathan	The evolution of the OSCA/OSCE/Clinical Examination of the Royal Australasian College of Surgeons	Completed

8.0 Teaching

8.1 Teaching at the University of Melbourne

The study of assessment subjects reflects the latest theoretical understanding, research methodology and analytical tools available in the field. Skills gained are cross-disciplinary and applicable to diverse fields. This study area assists professionals to move into careers as:

- Psychometricians
- Behavioural science researchers
- Assessment consultants
- Policy makers
- Performance auditors
- Strategic planners
- Managers of large organisations
- Researchers

Study Options

The Assessment Research Centre is involved in many different forms of teaching. A range of postgraduate courses are offered in the field of assessment for students enrolled at the University of Melbourne.

Subjects in Assessment

The Assessment specialist strand enables students to acquire state-of-the-art skills in the design, development and application of assessment, measurement instruments and psychometrics for purposes related to research, learning, credentialing selection and policy development. More information regarding subjects in assessment is available online, or from the student handbook. Subjects in the assessment strand are:

EDUC90205 - Assessment & Reporting for Student Learning

This subject examines judgement-based assessment of competency in a range of settings from vocational to early childhood. Various approaches to assessment data collection are examined including tests, observation, portfolios and the development and application of rubrics. The underlying theory is based on developmental learning and assessment. How assessment practices can be used to improve learning outcomes at individual, school, and system level is explored.

EDUC90215 - Test and Scale Development

Methods for creating, designing and developing measurement tools are explored. These tools include those used for the assessment of capabilities, achievement, attitudes and preferences. The principles of scale construction and validation provide the framework for topics including domain specification and definition, assessment instrument design, validity and reliability. Use of

quantitative methods is covered, including item response theory and classical analysis to inform the development process.

EDUC90213 - Item Response Modelling

This unit provides an understanding of item response modelling. The subject examines item response theory from an advanced perspective, including the development of single and multiple parameter models, their specification, estimation and evaluation. Procedures for calibration and banking tasks based on rating and criterion-referenced scales, constructed response and judgement-based assessments as well as choice tasks are explored. Additional topics include differential item functioning, test equating, and multi-faceted and multi-dimensional models. Applications of the models are explored with ConQuest software.

EDUC90206 - Large-scale Assessments in Education

This subject reviews educational measurement and assessment studies that focus on learning outcomes and the factors that influence those outcomes. It investigates the links between research questions with policy issues and ways to formulate these and link them to conceptual frameworks. Topics include sampling designs, sample size and weighting; defining who and what to measure; data quality and treatment of omitted and missing data; longitudinal and cross-sectional studies; causality and correlation; measures of growth; value-added analyses; implications of hierarchical data structures and analyses; and reviews of research and evaluation reports.

EDUC90220 - Research Methods

This subject offers an integrated approach to research in the field of educational and developmental psychology. The interdependence of measurement, design, and analysis is emphasised. Practical aspects of data management and analysis (using SPSS and AMOS software) are included in the laboratory component. Specific multivariate techniques, their selection, use, interpretation, and reporting, are studied. Data sets relevant to the practice of educational psychology are used to inform exercise hypotheses and analyses.

EDUC90175 - Quantitative Methods

This subject offers an examination of various methods of collection, display and analysis of quantitative data. Topics include: design of quantitative research programs; survey design; experimental and quasi-experimental designs; development and testing of questionnaires and other data collection instruments; item selection; reliability and validity of construct measures; exploratory and statistical analysis including multivariate techniques; and methods for displaying and reporting analyses of quantitative data for various audiences. The subject emphasises the use of standard statistical analysis and involves the parallel development of computing skills and non-mathematical understanding of quantitative approaches.

Other subjects taught by ARC staff at the University of Melbourne

Staff of the ARC also teach in a range of other courses, notably the Master of Educational Psychology, Master of Teaching (Primary), Master of Teaching (Secondary) and the Master of

Education. In each of these courses they bring their expertise and experience on assessment and psychometrics and embed the results of the research projects undertaken by the ARC staff.

8.2 Teaching with External Partners

Specialist Certificate in Literacy Leadership

The University of Melbourne and the Catholic Education Office, Melbourne, have collaborated to develop the Specialist Certificate in Literacy Leadership, designed specifically for literacy leaders in Catholic schools. The Specialist Certificate involves three year-long subjects which are also offered as non-award professional development units.

EDUC90525 - Leading a Professional Learning Culture

Within the context of literacy, this subject examines the leadership necessary for developing a learning community. Candidates focus on topics and skills such as collaborative decision making, problem solving, conflict management and negotiation and team processes. An understanding of the importance of standards, evidence-based decision making, performance monitoring and feedback are also examined. Case studies are conducted of individual student progress and intervention, adapting the content of the performance and development accreditation framework to the work of a Literacy Professional Learning Team.

EDUC90523 - Assessment for Literacy Learning

This subject investigates the integral role of assessment for literacy learning and teaching. Participants develop a theoretical and practical understanding of the principles of assessment, in which the emphasis is on purpose, data collection and the strengths and weaknesses of various approaches that are consistent with CEOM practices. Literacy assessment practices are explored, and the ways in which they can be utilised to improve learning outcomes at both the individual and school level are considered. Students are exposed to a range of assessment purposes, evidence gathering procedures, interpretation frameworks, decision making strategies, as well as recording and reporting formats.

EDUC90567 - Approaches to Literacy Assessment

This subject offers content and skills fundamental to the use of student assessment data for teaching and learning. Review and evaluation of specific literacy-based tests serve as a basis for demonstrating how to use these data with a focus on the functions of test results. Concepts of reliability and validity, and criterion and norm-referenced interpretation of student data at both individual and aggregated levels, are examined with a focus on the needs of teaching staff in schools from P-6. Principles of test equating and objective measurement using Rasch models are introduced so that students will have a working understanding of the application of these to their practice. In terms of reporting, the appropriateness of different levels of information for different audiences will be analysed.

Specialist Certificate in Leadership of Assessment Practice

The University of Melbourne has collaborated with the Department of Education and Early Childhood Development (DEECD) to offer the Specialist Certificate in Leadership of Assessment Practice. The course builds upon current professional development initiatives in DEECD. It reflects the commitment to support the building of knowledge and capacity of both leaders and teachers to effectively use assessment data in identifying the learning needs of students. The Specialist Certificate involves two subjects that can be taken in either a semester-long or year-long version. These subjects are also offered as non-award professional development units.

EDUC90585 - Leading a Professional Learning Team

This subject focuses on the development of the skills of an experienced Instructional Leader in promoting an environment which effectively contributes to the learning of all students in their school through a culture of collaboration, challenge and peer accountability. The subject will guide students in how to mobilise and energise others by applying strategic thinking and the use of data-driven decision making to the building of relationships and the achievement of agreed outcomes through a Professional Learning Team (PLT). Students will undertake an analysis of leadership frameworks and examine how these relate to the leadership context in their school knowledge base. Using the E^5 model, students will identify areas of self improvement and opportunities for development of self and all members of their PLT.

EDUC90586 - Assessment for Teaching and Learning

This subject investigates the integral role of assessment for teaching and learning. Students will develop a theoretical and practical understanding of the principles of assessment, where the emphasis is on purpose, data collection and strengths and weaknesses of various approaches that are consistent with DEECD practices. Assessment practices, and how they can be utilised to improve learning outcomes at both the individual and school level, are explored. Students are exposed to a range of assessment purposes, evidence gathering procedures, interpretation frameworks and decision making strategies, as well as recording and reporting formats.