Keynotes: music evaluation

Musical ability testing made easy

Teachers advising students on their abilities in vital areas of musicianship have until now had limited systematic means of assessing, documenting and encouraging progress. And students have, in many cases, had limited assistance in making the decision about which instrument to learn.

The Keynotes Music Evaluation Software Kit, which is to be launched in September, was developed for ACER by Ms Jennifer Bryce and Ms Margaret Wu to address the needs of aspiring musicians and their teachers, and to make music testing more accessible. Because Keynotes tests musical ability rather than formal training it enables students without an academic music background to participate in music programs. Naturally musical students who would not otherwise consider themselves qualified can succeed in the Keynotes program and be inspired to have a go at learning an instrument.

“The kit responds to a couple of important needs we have observed in young musicians and their teachers. Most beginners cannot envisage the challenges and opportunities presented by different instruments. The choices they make sometimes restrict them later on, for example selecting the piano may make it harder to join a band or orchestra. By watching established student musicians who appear in the Keynotes presentation they can begin to frame questions about instruments. It will help them make a more informed choice of instrument,” say Ms Bryce and Ms Wu.

“Teachers will also welcome the chance Keynotes offers them to pinpoint both talent and gaps in their students’ abilities. Keynotes is different from many theory exams in that it presents students with authentic musical problems rather than requiring them to recall learned musical knowledge.”

Building a profile of students’ musical abilities

Keynotes streamlines assessments of pitch discrimination, patterns recognition and music reading by linking multimedia stimulus with a multiple choice question format. Responses are collated into a report for each student, which serves as a guide to their knowledge and their performance levels.

Part I has the flexibility to be used in either an instrumental music teacher’s studio for group lessons or one-on-one, or in a school music classroom.

“The Pitch and Patterns components are useful for aural training. Students can work through the questions unaided whilst waiting for a lesson or while I am concentrating on another group member,” said a private studio teacher responding to an early Keynotes workshop.

“The music reading test is especially useful because it gives me a real idea of how much help a student needs with this essential skill. And ready access to a ‘snapshot’ of their own abilities gives many the incentive they need to improve.”

Used in the classroom the kit gives an immediate indication of the varying levels of musical ability in a new group of students. This means that highly music literate students will not be asked to work at levels well below their capacity because the teacher is unaware of their ability. Naturally musical but untutored students can be recognised and given more appropriate activities.

Students have responded positively to the computer format and to the streamlined question style. The emphasis throughout Keynotes is on testing ability in music rather than formal knowledge such as note names. The Keynotes program can be completed in class or at home, and students can work at their own pace, repeating examples wherever necessary. The result is a personal profile of each individual’s results in pitch, pattern recognition and music reading which enables teachers to give advice on future music involvement.
Living music – a multimedia presentation to inspire and assist

The interactive multimedia presentation of Keynotes Part II features student musicians from Melbourne’s Blackburn High School. After watching an orchestral performance by these musicians, students access additional screens where individual performers play their instruments and answer questions, such as:

• Is it hard to learn?
• How much time would I have to practise?
• Is it okay for someone of my age?
• Could I get into a band?
• How did you get through the difficult times?
• What are the rewards while you’re still at school?

Trials point to the importance of using peer group models rather than professional musicians in the performance presentation. The influence of peers has been identified as decisive in making a choice of instrument, and Keynotes harnesses this powerful source of inspiration.

Keynotes is designed for mid-primary to lower secondary school students. Using either classroom or laptop computers, students in the 9 to 14 age range can explore and consider the possibilities of different instruments. Through the Keynotes testing program they are helped to recognise their strengths and weaknesses in three essential skill areas and to pursue improvement where needed with minimal teacher input.

Teachers can gain rapid insight into the ability levels of each class by using Keynotes’ profiles of students’ strengths and weaknesses in core areas of music learning. This profile provides a useful basis for curriculum planning, particularly at the stage of transfer from primary to secondary school.

“We believe Keynotes brings more musical opportunities and the potential for more pleasure in music to every student who uses it because it is so accessible,” say the creators of Keynotes.

Perhaps a potentially fine musician will be discovered through the use of Keynotes because it does not preclude students whose homes or previous education have been without formal music.”

Keynotes will be available from ACER Press Customer Service after September. The starter kit is $149.95.
Ph (03) 9835 7447; fax (03) 9835 7499; email sales@acer.edu.au
A focus on numeracy

The PISA project and ACER’s Research Conference 2000 will explore world-class standards in numeracy teaching and learning.

ACER is leading a consortium appointed by the Organisation for Economic Cooperation and Development (OECD) to assess the performances of 15-year-olds from 32 countries against world-class numeracy standards as part of the Programme for International Student Assessment (PISA).

PISA is an initiative of the governments of OECD countries to monitor student achievements in reading, mathematical and scientific literacy every three years. Numeracy – or ‘mathematical literacy’ as it is called in PISA – is being assessed in all countries in 2000, and will be the primary focus of the international assessments in 2003.

A major contribution of PISA has been the development of an internationally agreed definition and framework for assessing and monitoring numeracy standards. Assessments of mathematics learning usually focus only on students’ abilities to recall and demonstrate knowledge and skills covered in school curricula. PISA defines numeracy as the use of mathematics in people’s lives and focuses on the ability to put mathematical skills and knowledge to functional use.

In PISA, numeracy is defined not merely as knowing and understanding mathematics, but also as ‘engaging in’ mathematics – both in the sense of applying mathematics (e.g. working out how much change to give someone in a shop) and in the sense of appreciating and taking positions in relation to issues (e.g. having an opinion about a government’s spending plan). Numeracy also is considered to include both the ability to pose and solve mathematical problems in a variety of contexts, and the inclination to do so – an inclination that may be related to personal traits such as self-confidence and curiosity. 1

The numeracy framework developed for PISA recognises that numeracy involves the ability to apply mathematical processes and content to a wide variety of contexts.

The processes that students are expected to apply include analysing, reasoning, and communicating ideas effectively by posing, formulating and solving mathematical problems. PISA content includes broad areas of mathematics (‘big ideas’) such as change and growth, space and shape, chance, quantitative reasoning, and uncertainty and dependency relationships. And the contexts in which students are expected to be able to apply mathematics include personal life, school life, work and sports, local community, and society.

The PISA 2000 assessments encompass a range of general mathematical processes applied in a few major areas of mathematics to address tasks drawn from real-world contexts (e.g. pollution problems, traffic safety, population growth).

When the results of the first PISA cycle are released in late 2001, they will provide the most comprehensive picture yet constructed of the reading, mathematical and scientific literacy skills of 15-year-old students in the 32 participating countries.

Improving numeracy learning

While PISA is showing how Australian 15-year-olds perform against world-class standards in numeracy, other research at ACER is exploring international best practice in numeracy teaching and learning.

PISA Definition

PISA defines numeracy (‘mathematical literacy’) as the capacity to identify, to understand, and to engage in mathematics and make well-founded judgements about the role that mathematics plays, as needed for an individual's current and future private life, occupational life, social life with peers and relatives, and life as a constructive, concerned, and reflective citizen.

Did you know that 2000 is World Mathematical Year?

It was launched by the International Mathematical Union, and is supported by UNESCO.

Activities for the year focus on:

• the great challenges of the 21st century
• mathematics, a key for development
• the image of mathematics

For further information see: wmy2000.math.jussieu.fr

ACER’s Research Conference 2000 (Improving Numeracy Learning: What Does the Research Tell Us?) will bring together leading Australian and international numeracy researchers to review recent research findings and to identify priorities and promising directions for improving classroom practices. Keynote speaker Professor Margaret Brown from King’s College London will begin the conference by addressing the question: “What kinds of teaching and what other factors accelerate primary pupils’ progress in learning numeracy?”

Professor Brown’s UK research has focused on the numeracy teaching practices of more than 500 teachers in an attempt to understand the factors underlying successful numeracy teaching. Her findings suggest that effective numeracy teaching is strongly related to the orientations of teachers, including their beliefs and the content knowledge underpinning their teaching. These factors seem more important to successful numeracy learning than teachers’ formal qualifications, or the amount of time they spend on whole class teaching.

Brown’s findings include the observation that highly effective numeracy teachers use teaching approaches which:

• ensure that all students are being challenged and stretched, not just those who are more able;
• build upon students’ mental strategies for calculating, and help them to become more efficient;
• encourage purposeful discussion, in whole classes, small groups, and with individual pupils; and
• use systematic assessment and recording methods to monitor students’ progress and to record their strategies for calculation, to inform teaching and learning.

An ACER government-funded project is reviewing the findings of Brown and other leading numeracy researchers to provide Australian teachers with advice on international best practice in improving numeracy learning. The ACER Longitudinal Literacy and Numeracy Study, which is also a government-funded project, will provide insights into the nature of numeracy learning throughout primary school.

“In the information age, children need to learn how to make sense of information, often numerical information, presented in a dazzling array of ways. Today’s students need to be at home in this world — and to contribute to it. In the knowledge society, it can truly be said that opportunity and numeracy go hand in hand.”

Dr David Kemp, MP

A NUMERACY TASK

You are asked to design a new set of coins. All coins will be circular and coloured silver, but of different diameters.

Researchers have found that an ideal coin system meets the following requirements:

• diameters of coins should not be smaller than 15 mm and not be larger than 45 mm.
• given a coin, the diameter of the next coin must be at least 30% larger.
• the minting machinery can only produce coins with diameters of a whole number of millimetres (e.g. 17 mm is allowed, 17.3 mm is not).

Design a set of coins that satisfy the above requirements. You should start with a 15 mm coin and your set should contain as many coins as possible.

Source: Programme for International Student Assessment
Australian students are increasingly choosing vocationally oriented subjects in their final year of secondary school. This is evident from comparisons of subject enrolment patterns from national surveys of Year 12 students conducted in 1993 and 1998; a period during which school retention rates declined slightly from 77 to 72 per cent.

Year 12 enrolments in the Technology Key Learning Area increased substantially over those years, according to a recent ACER report, *Subject Choice by Students in Year 12 in Australian Secondary Schools*.

In 1993, enrolments in technology subjects made up 10.6 per cent of total subject enrolments. By 1998 the enrolment share for technology had grown to 13.5 per cent. Increases were notable in computer studies, technical studies and food and catering. For example in 1998, nearly 28 per cent of students studied at least one computing (or information technology) subject in Year 12 compared to 20 per cent in 1993. In 1998 23 per cent of Year 12 students studied a technical subject in Year 12 compared to 17 per cent in 1993.

Over the same period, the percentage of enrolments in Studies of Society and Environment (SOSE) decreased from 22.9 per cent in 1993 to 20.1 per cent in 1998. Among SOSE subjects the percentage of students studying economics declined from 18 to 11 per cent, the percentage of students studying geography declined from 18 to 15 per cent and the percentage of students studying history dropped from 21 to 17 per cent. In contrast there was a substantial increase in the percentage of students in Business Studies from 9 to 17 per cent.

Enrolments in English and mathematics have remained stable, but enrolments in the sciences have declined. There were small declines in the percentage of students studying chemistry and physics and a more substantial drop for biology (from 27 to 21 per cent of Year 12 students).

There has also been a substantial increase in the proportion of students undertaking Vocational Education and Training (VET) subjects in Year 12. Approximately 16 per cent of Year 12 students in Australia in 1998 included at least one VET subject as part of their program. Other data indicate that VET subjects are even more popular among students in Year 11.

Deputy Director of ACER, and one of the authors of the report, Dr John Ainley, said “Participation in VET subjects was greater for those from a lower socioeconomic background, for those with parents with lower levels of education and those with lower levels of early school achievement in literacy and numeracy.”
“Students from a non-English speaking background were not as likely to participate, nor were students from independent schools or students in capital cities,” Dr Ainley said.

Gender segmentation in subject choice remains evident in enrolment data. Males more frequently choose the areas of mathematics, particularly higher level mathematics, as well as physical sciences, technical studies, computer studies and physical education. Females predominate in the areas of humanities and social sciences, biological sciences, the arts, languages other than English and home sciences. The gap in participation in the physical sciences and mathematics appears to have narrowed between 1993 and 1998.

“It’s important to monitor patterns of subject choice among students in Year 12, because the subjects chosen influence the future education, training and labour market outcomes for students,” Dr Ainley said.

Previous studies have shown that students from higher socioeconomic backgrounds, higher levels of achievement in previous years of school and students from non-English speaking backgrounds are more likely to participate in the courses that are avenues to higher education and the professions. Students from disadvantaged backgrounds tend to participate in courses that lead to vocational education and training or more often to entry into the labour market without any further formal education or training.

The study looked at approximately 7500 students who were in Year 12 in 1998. The study forms part of the Longitudinal Surveys of Australian Youth (LSAY) research program, which is jointly managed by ACER and the Commonwealth Department of Education, Training and Youth Affairs.


The full report will be available on the ACER web site (www.acer.edu.au)

Copies may also be purchased from ACER Press Customer Service (ALSA15; $30.25, plus p&h)
Ph (03) 9835 7447  fax (03) 9835 7499
email sales@acer.edu.au

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Year 12 enrolments in various subject areas by gender

\[\text{Male} \quad \text{Female}\]

ACER Winter 2000
Australian schools and school systems recognise the rights of all children to learning experiences that challenge and extend their current levels of attainment. But the provision of stimulating learning environments for students who are already high achievers can present schools with special challenges.

Initiatives to provide appropriately stimulating learning experiences for highly achieving students include advanced classes, accelerated programs, and selective entry schools. The Bright Futures program in Victoria, the Special Secondary Placement Program: Languages Other Than English, and the Academic Talent Program in Western Australia, and the Selective High Schools program in New South Wales are examples of such initiatives.

With the introduction of advanced classes for high achieving students, accelerated learning programs, and selective schools comes the task of ensuring the best possible match between advanced learning programs and those students who are most in need of—and most likely to benefit from—programs of this kind.

ACER conducts a range of activities to support schools and school systems in ensuring that places in advanced learning programs and selective schools are provided on an equitable basis to those students who are most able to benefit from educationally enriched environments.

Examples of ACER’s activities in this area include work to support the South Australian Students with High Intellectual Potential (SHIP) program, the New South Wales Selective High Schools Test (SHS), and the Western Australian Academic Talent Selection Program (ATSP). In Victoria, selective-entry high schools organise the selection of their students individually, many of them with ACER’s assistance.

In recent years, ACER has seen an increase in the use of selection tests for accelerated programs. According to ACER Assessment Services Manager, Ms Deirdre Jackson, “There seems to have been a growth in special programs for talented students, and they are keen to make sure they place the right students in these programs.”

“Objective, professionally developed tests can be of considerable assistance to schools in identifying students ready to participate in advanced learning programs. Schools can identify students with a minimum of fuss because ACER develops the tests, marks the papers, analyses the results, and provides schools with a comprehensive report on students’ abilities.”

“Schools sometimes find that parents are more comfortable with decisions about the placement of students in these programs, knowing that the testing has been undertaken by an independent organisation.”

“All students should be given the opportunity to achieve their full potential during their time at school.”
Schools which offer scholarships and bursaries also are keen to see that they offer scholarship places equitably to students who are most deserving and best able to take advantage of the learning opportunities they provide. ACER provides many schools with assistance in offering places to students through the Cooperative Scholarship Testing Program (CSTP), Middle Primary Scholarship Test (MPST) and the Australian Co-operative Entry Program (ACEP).

The Cooperative Scholarship Testing Program, an annual program used by approximately 170 schools across Australia to select students for the award of scholarships, is the best known of ACER's scholarship tests.

ACER develops CSTP tests, supplies them to schools, marks the test papers and reports the results to schools. Individual schools then offer scholarships based on their registered candidate lists.

Scholarship tests

“All students should be given the opportunity to achieve their full potential during their time at school. For most students this occurs in the course of the school day. These students are challenged and excited by the regular classroom teaching and material. But for some students special provision must be made in the regular classroom if they are to have the same exciting and challenging learning experiences as their classmates.”

Victoria Department of Education, Employment and Training,

“The Education Department of Western Australia is committed to ensuring that all students in government schools are provided with the opportunity to access educational programs consistent with their needs and talents. Government schools conduct a range of supplementary programs which provide opportunities for our State's most gifted and talented students to interact with their gifted and talented peers at higher levels than can be provided in the regular classroom or school program”

EDWA Special Secondary Placement Program: a guide for parents
(http://www.eddept.wa.edu.au/centoff/gifttal/gift.htm)

“It's clear that we are providing a test that meets the needs of both students and schools,” Ms Jackson said. Last year ACER conducted a survey to see how scholarship winners selected through the CSTP performed in Year 12. “Scholarship winners responding to the survey received results in the top 5% of Year 12 students. For the main group of scholarship winners—those awarded academic scholarships for entry to Year 7—the median tertiary entrance rank at Year 12 was over 98, placing them in the top 2% of Year 12 students.”

Recently, ACER has developed the Middle Primary Scholarship Test (MPST) for schools wishing to offer scholarships at upper primary levels. The main testing occurs on the same date as CSTP. But the Middle Primary Scholarship Test also can be administered as part of entry placement procedures or as a scholarship test at any time convenient to the school.

For further information about ACER's selection and scholarship tests, see the ACER web site (www.acer.edu.au), or contact Deirdre Jackson, telephone (03) 9277 5587, email jackson@acer.edu.au
What does the research tell us?

Each year the ACER Annual National Research Conference provides Australian educators with a unique opportunity to review the current state of knowledge in a key area of educational policy or practice. This year the focus of the conference is on improving numeracy learning in schools.

Numeracy learning is the subject of strong professional interest among policy makers and practitioners at all levels of education.

The 2000 ACER Research Conference brings together leading numeracy researchers who will identify major research findings which, in the current context, indicate critical directions, priorities and issues to be addressed in improving students’ numeracy learning. The program will include focus group sessions in which participants will be able to consider these research findings in relation to their own work in various educational settings.

Outstanding international and national numeracy researchers will review findings in critical areas of research, including:

- Numeracy learning in the early and middle years of schooling
- International numeracy assessment programs
- Mental computation skills and number sense
- Improving numeracy learning for Indigenous students
- Ways of describing growth in numeracy.

Speakers include

Opening address
The Hon. Dean Wells, MLA
Minister for Education, Queensland

Plenary addresses
Professor Margaret Brown, Professor of Mathematics Education, School of Education, Kings College London
What kinds of teaching and what other factors accelerate primary pupils’ progress in learning numeracy?
Professor Sue Willis, Dean of Education, Monash University

Conference dinner speaker
Dr Mike Askew, Kings College, London

Further information
For full registration details, see the ACER web page (www.acer.edu.au), or contact:
Ms Jennie Armato-Martin
c/- ACER
Private Bag 55
Camberwell Victoria 3124
Mobile 0407 333 926
Email armato@acer.edu.au

Early registrations close 1 September 2000.
All registrations close Monday 9 October 2000.
OECD PISA study

More than 230 secondary schools across Australia will participate in the OECD Programme for International Student Assessment (PISA) during July and August. With this number of participants, Australia will satisfy the OECD’s very strict sampling rules. This represents an outstanding level of support from our schools, for which ACER offers appreciation in advance.

PISA assesses the skills and knowledge of 15-year-olds around the world. ACER is running the Australian component of the study, in addition to leading the consortium conducting the international study. The first reports from the study will be released in late 2001.
**PD Workshops**

**EDUCATION**

**Sight Words Made Simple**
Twilight workshop
Presenter: Marcella Reiter
Cost: $44.00
Camberwell: August 14
Geelong: August 15
Berwick: August 21
Camberwell: August 22
Mill Park: August 28
Mordialloc: August 29

**Developing Curriculum Activities for Understanding and Managing Feelings**
Presenter: Jenny Rickard
Cost: $110.00
Melbourne: November 2
Melbourne: August 17 (primary school focus)

**Developing Curriculum Activities for Stress Management and Relaxation Skills**
Primary school focus
Presenter: Jenny Rickard
Cost: $110.00
Melbourne: August 18
Melbourne: November 3

**Cued Articulation**
2 Saturday mornings
Presenter: Fiona Balle
Cost: $120.00
Melbourne: August 19 & 26

**Cued Vowels**
2 Saturday mornings
Presenter: Fiona Balle
Cost: $120.00
Melbourne: October 21 & 28

**Learning Difficulties**
2-day Seminar
Presenter: Jane Metcalfe
Cost: $275.00
Melbourne: August 24–25
Melbourne: October 12–13

**Conceptual Thinking in English**
Presenters: Laurence Splitter and Marion Meiers
Cost: $120.00
Melbourne: October 30

**Introduction to Maths Intervention**
Presenter: Cath Pearn
Cost: $120.00
Sydney: November 1
Melbourne: November 10
Brisbane: November 15

**PSYCHOLOGY**

**16 PF Master Class – Introduction**
Presenter: Peter Storr, ASE, UK
Cost: $435.00
Sydney: August 23
Melbourne: August 28

**16 PF Master Class – Maximising Feedback**
Presenter: Peter Storr, ASE, UK
Cost: $435.00
Sydney: August 24
Melbourne: August 29

**16 PF Master Class – Selection Processes**
Presenter: Peter Storr, ASE, UK
Cost: $435.00
Sydney: August 25
Melbourne: August 30

**HUMAN RESOURCES**

**Test Administration Course: A Practical 1 Day Workshop**
Presenters: Marian Power and Melissa McColough
Cost: $1864.00
Melbourne: August 14–18
Sydney: September 23–27

**Occupational Testing Course: Intensive 5 Day Program**
Presenters: Marian Power and Melissa McColough
Cost: $1864.00
Melbourne: August 14–18
Sydney: September 23–27

**Assessment Centre Exercises Course**
Presenters: Marian Power and Melissa McColough
Cost: $1094.00
Melbourne: September 7–8
Sydney: November 9–10

**PIN-POINT: Personality Instrument Training Course**
Presenters: Marian Power and Melissa McColough
Cost: $1644.00
Melbourne: October 18–20
Sydney: November 15–17

**Strong Interest Inventory Training Course**
Presenter: Daiva Vertyla
Cost: $324.00
Melbourne: September 7
Sydney: October 26
Melbourne: November 23

**MBTI**

**Form M Refresher**
Half-day workshops
Presenter: Peter Geyer
Cost: $99.00
Melbourne: August 7

**Understanding the 16 Types**
Presenter: Peter Geyer
Cost: $764.00
Melbourne: August 9–11

**Type for Counsellors**
Presenter: Peter Geyer
Cost: $539.00
Melbourne: August 21–22

**Familiarisation for Psychologists – how to administer, use and apply the MBTI**
Presenter: Jo Fleischer
Cost: $253.00
Melbourne: August 31

**Do What You Are – MBTI and Careers**
Presenter: Jo Fleischer
Cost: $253.00
Melbourne: September 1
Brisbane: September 8
Sydney: October 13

**MBTI Qualifying Program**
Presenter: Peter Geyer
Cost: $1265.00
Melbourne: September 18–22
Melbourne: 27 November–1 December
Hobart: December 4–8

**MBTI Step II**
Presenter: Peter Geyer
Cost: $539.00
Melbourne: September 25–26

**MBTI and Team Building**
Presenter: Jo Fleischer
Cost: $539.00
Melbourne: September 5–6
Brisbane: 30 November–1 December
Sydney: December 7–8

**Further information:**
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