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# REVIEW OF ASSESSMENT ACTIVITIES



Issue 9

Winter 1998/1999

## In This Issue

The Winter 1998/1999 newsletter opens with an article—the first of what hopefully will be a two-part series—on information technology in Network A countries. Information technology clearly is a topic of major interest among countries, as media attention around the globe can attest. Despite the perceived potential of technology, however, we know relatively little about its impacts in educational settings. This article will explore the use of technology, particularly, as a tool for assessment and the impacts it has had in this arena. This edition's Country Highlight describes the education and assessment system in New Zealand in light of a decade of education reform.

Several other articles of note in this issue are kudos to our most regular contributors (look inside to find out who they are!), a spotlight on Portugal, and a second installment in the *Review of Assessment Activities* Resource Guide. As usual, the newsletter also provides an update on activities in the INES Project and in PISA (Programme for International Student Assessment), as well as a brief review of assessment activities occurring in member countries between July and December, 1998.

Thank you, as always, to the Network A members and correspondents who contributed to the newsletter. Special thanks to David Philips from New Zealand for preparing a very informative Country Highlight, and to Allan Nordin of Sweden and Jaap Scheerens of the Netherlands, and their staffs, for providing updates from around the INES Project. See you again in July!

## Information Technology

In the previous newsletter, we looked to the past, reflecting on the changes that have occurred in assessment in our countries in the recent years. Now, we look to the future, to some further developments in assessment. The Winter 1998/99 newsletter presents the first of a two-part series on information technology. Here, we will focus on the use of technology as a *tool* for assessment and the impacts technology has had on assessment.

### **Technology as a Tool for Assessment**

Technology has been used for educational assessment for many years. In fact, one of the major draws of technology is in its capacity to increase efficiency—and this can be easily applied to the world of assessment. Historically, the education community has used computers to store assessment information; to analyze data; to score closed-ended items on tests electronically. These are hardly innovative uses, but certainly they are ubiquitous in modern systems and continue to have a great impact (see the following section) on the efficiency and scope of many countries' assessment activities.

What is of perhaps greater interest to us—and the focus of much of this article—is the use of technology as a *tool* for assessment. This type of use is distinguished from the more common applications (such as described above) in that, when used as a tool, the technology is an integral part of the design and function of the

assessment, rather than simply aiding the scoring and analysis of the assessment. In other words, we may consider technology a tool for assessment if it allows innovation in the content (e.g., more detailed information about cognitive processes), as well as the process, of assessment. Although this is very much an area of interest for Network members, by the level of response we received, it appears that it is one that is fairly new and about which we have much to learn.

The application of diagnostic software is one way in which technology is used as a tool for assessment in Network A countries. Diagnostic software assists teachers to identify students' strengths and deficiencies, both more quickly and at a finer level of detail than he or she might otherwise be able to do. Several respondents described the use of diagnostic software in their countries. For instance:

- In the **United Kingdom**, diagnostic software is used for the Key Stage national assessments at ages 7, 11, and 14, which allows teachers to better analyze how their students fare with regard to the National Curriculum and which informs their future planning. There continues to be a demand from classroom teachers in the United Kingdom for the development of even more specialized diagnostic software.
- **Portugal** also is conducting some national experiments with diagnostic software, testing software packages for foreign languages and other subjects with students in compulsory schools.

Computer simulated tests—slightly newer to the scene—are another way technology is used as a tool for assessment in Network A countries. With computer-simulation, students are exposed to environments that are intended to be “authentic”—environments that mimic situations or problems that students may encounter in real-life and that are interactive (mirroring, anticipating, or reacting to students' responses), thereby allowing more in-depth information about students' abilities to be gathered. Although there is some

research and experience in this, it will be interesting to learn from the example of **Germany**, where a national sample of students will be given an advanced computer-simulated test for problem-solving as a national option in the PISA project.

### *The Impact of Technology*

Technology has had a major impact on the practice of assessment in Network A countries and internationally, as well. Many of the impacts our respondents noted relate to the increased efficiency allowed by technology (as mentioned previously). We will have to wait to learn about the impacts of using technology as a tool for assessment, until these practices are more common.

Some of the most notable influences on the practice of assessment were described by countries that are taking advantage of their Internet connectivity. For instance:

- The **United Kingdom** is piloting electronic data transfer between the central processing center and schools to facilitate administration of its national assessment; and
- In **Sweden**, they are using the Internet to distribute test materials and to collect data for their new national assessment program.

Another impact technology is having in Network A countries is on the test-takers themselves.

- In **Canada**, the Council of Ministries of Education Canada (CMEC) recently administered the SAIP (the national student assessment test) with new technological provisions for students. Here, students were given the option of using computers for the writing assessment, and calculators for the math and science assessments.
- In the **United States**, beginning in mid-1999, anyone taking a graduate or professional school entrance examination will be doing so on the computer. When

delivered by computer, these exams are designed to adapt to the test-taker's ability level and thus provide a more accurate reflection of ability than in paper-and-pencil testing in a short amount of time.

Internationally, the participating countries of PISA (OECD's Programme for International Student Achievement) show their continued support for exploring a similar arrangement using the computer as a delivery mechanism and tool for assessment for their tests in future cycles.

Finally, several countries noted that the increasing presence of technology—for assessment and for all educational endeavors—has raised important issues that they would like to learn more about. For instance, **Canada** and **Portugal**, in particular, described how the perception of technology itself as an important skill was rising, which in turn is leading to interest in how to assess the level of students' technological abilities and the effects of these skills on their education and achievement more generally.

Unfortunately, this topic will have to wait until the next edition of the newsletter, which will tackle this very issue...

## ***Spotlight on Portugal***

Portugal began developing and implementing a national assessment system for compulsory schooling following major education reforms in 1992. For the first time, criterion-referenced written tests in mathematics and Portuguese were given to a national sample of students in 4<sup>th</sup>, 6<sup>th</sup>, and 9<sup>th</sup> grades, with items (in the mathematics test, for example) similar to those presented in TIMSS. The next cycle of Portugal's national assessment will occur in 2000.

Portugal also has a national examination program for students at the end of secondary

school. In order to obtain their diplomas, students are required to take written tests in four to six subject areas. As the development of subject tests like "informatics" attests, there is a growing interest in the assessment of students' skills with information technology.

### ***"Perfect Attendance"***

Did you know that three countries have provided a contribution for each of the nine issues of the *Review of Assessment Activities* newsletter? Thank you, New Zealand, Spain, and the United Kingdom, for your continued and consistent support! An honorable mention goes to Turkey, for its contributions to the past eight newsletters, and to all countries that help to make the newsletter a success.

## ***Network Updates***

### ***Network A***

Network A met in San Francisco in April 1998 to discuss a revised draft of its Strategic Plan, review draft indicators for *Education at a Glance* (EAG), and plan for new and continuing development work. Since that time, many activities have been underway. Regarding the CCC development work, September 1998 proved to be a busy month. At the Meeting of Experts on Self-Concept/Learning Strategies in Berlin, participants finalized development work on the instrument, selecting a set of scales—one of which is self-concept—that experts believe together provide a picture of students' preparation for lifelong learning. A second September meeting, of countries interested in this work, provided a first review of these final developments. Planning for development work in Problem-Solving continued, as well.

The Network A Fall plenary meeting was held on October 26-28, 1998, in Brussels, Belgium. Members discussed EAG indicators for 1998

and possible future indicators; including a volume of essays on development of outcome indicators; CCC development work in Self-Concept/Learning Strategies and Problem-Solving; and future activities regarding technology and assessment. The Network also received an update from the Defining and Selecting Key Competencies (DeSeCo) Project; discussed metacognition and translation activities in PISA; and attended a seminar on activities underway in the International Life Skills Survey (ILSS) project. Network A's next meeting will be held on March 22-24, 1999 in Paris.

### **Network B**

Network B last met in Frascati, Italy, on December 9-11, 1998. In preparation for this meeting, two activities occurred. First, countries were asked to describe their plans to implement the new ISCED classification. Second, the Transition from School to Work sub-group met to discuss a framework for the development of indicators on transition—including how to better use existing data and how to design future data collection—and a module of questions prepared by EUROSTAT on transition from school to work.

Topics on the agenda for December's plenary meeting included: the implementation of the new ISCED classification; proposals and budgets for sub-group activities on Continuing Education and Training and on Transition from School to Work; a general strategy for all areas within Network B; planning for EAG 1999; social equity issues; an update on rates of returns; and a potential volume of essays on labor market outcomes indicators for the General Assembly in 2000.

### **Network C**

Since the last newsletter, Network C was busy preparing indicators for EAG 1998. Network C's contribution included indicators on teachers, intended instruction time, and decision-making structures. The Network also

was engaged in several development activities, exploring indicators on tertiary level personnel and on general staffing (i.e., teacher qualifications at primary and secondary levels and teacher in-service training). In the area of personnel, Network C will collaborate with the INES Technical Group and also is considering collaboration with a UNESCO-OECD-Eurostat (UOE) questionnaire activity.

Another major activity of Network C has been developing a survey of upper-secondary schools. This survey will focus on transition, quality, use of information and communications technology, and staffing at the upper secondary level. A detailed proposal describing the development of the rationale and methodology of the survey was submitted to the INES Steering Group for review. Network C's last meeting was held on November 16-18, 1998, in Santiago de Compostela, Spain. Members discussed the upper secondary school survey and the ongoing work on equity and staffing. Network C's sub-groups will next meet in Paris on March 1-2, and the full memberships will meet in Amsterdam on May 10-12.

### **The BPC**

In the past six months, the Board of Participating Countries (BPC) has seen many developments in the ever-growing PISA project—30 countries now plan to participate in the first cycle data collection. In April 1998, the BPC met in San Francisco to review PISA activities since December and to establish broad directions for the continued work by the ACER-led consortium. Participants also discussed proposals for sampling standards and criteria for data quality control; implementation of PISA at the national level; plans for the assessment of cross-curriculum competencies; and the expenditure outlook for 1999-2001. The BPC again met in July 1998 in Paris to review and take decisions on the frameworks in math, reading, and science assessments.

The BPC's last meeting was held in Paris on October 29-30, 1998. At this meeting, participants reviewed the development of test items; the criteria for performance evaluation both during the process of item development and after the administration of tests; and the procedures and timeline for the field test. Participants also were introduced to the analytic framework and instruments for the student and school context questionnaires. The BPC's next meeting will take place in Tokyo, Japan during the first week of March 1999.

## **Country Highlight: New Zealand**

*This article was prepared by David Philips of the Ministry of Education, New Zealand.*

As in many other countries, in New Zealand there have been major economic reforms and related changes to the education and training system in the past ten years. Since 1989, New Zealand has witnessed restructuring of the administration of education, decentralization of school governance, reform of the national curriculum, and development of a new system for recognizing national qualifications. This article provides an overview of the education and assessment system in New Zealand, in light of these reforms.

### **Structure of the Education System**

In New Zealand, the Ministry of Education owns, funds, regulates, and provides resources to schools. There also is an Education Review Office that monitors school performance and a variety of other agencies (e.g., the Special Education Service and the New Zealand Qualifications Authority) that have more specialized functions.

Most children in New Zealand, after attending some form of early childhood education, begin their formal schooling at age 5, although school attendance does not become

compulsory until age 6. The education system consists of primary school from Years 1 to 6 (or 8), intermediate school from Years 7 to 8, and secondary school from Years 9 to 13. School attendance is compulsory until the age of 16. The majority of students attend state or integrated schools, although an increasing number of students are receiving instruction at home and some attend private schools.

### **Legislative Requirements**

In New Zealand, schools are subject to a legislative framework which includes the 1989 Education Act. *Inter alia*, this requires each school to develop an approved charter that specifies what the school intends to achieve, including the aim of meeting the National Education Guidelines. These guidelines outline the responsibility of school boards to foster students' achievement by implementing the New Zealand Curriculum (see section below), and require schools to:

- Monitor student progress against national achievement objectives;
- Identify and address learning barriers; and
- Maintain individual records and report their progress.

In addition, it is expected that schools will collect and analyze data at a school-wide level in ways that will enable them to respond to the needs of under-performing sub-groups and individuals.

To ensure that schools are fulfilling national requirements, the Education Review Office conducts regular accountability reviews.

### **The New Zealand Curriculum**

The curriculum and assessment policies currently being implemented by the Ministry of Education emphasize the improvement of student achievement, particularly the clearer specification of what students need to learn and more rigorous assessment of their achievement. *The New Zealand Curriculum*

*Framework* (NZCF), released in April 1993, is the foundation policy statement that covers teaching, learning, and assessment for New Zealand schools. As such, it:

- Sets out the principles that give direction to the curriculum;
- Specifies seven essential learning areas (language and languages, mathematics, science, technology, social sciences, the arts, and health and physical well-being) which describe in broad terms the knowledge and understanding which all students need to acquire;
- Establishes eight essential skills (communication, numeracy, information, problem-solving, self-management, physical skills, work and study skills, and competitive, social, and cooperative skills);
- Indicates the place of attitudes and values in the curriculum; and
- Outlines policies for the assessment of student achievement.

Supplementing the NCZF are new national curriculum statements in English, with equivalent Maori versions, which describe the national achievement objectives in the seven essential learning areas. Schools use these statements, which include suggestions for teaching and assessment, as a basis for planning teaching and learning programs. The required learning in the national curriculum statements is organized according to a progressive series of achievement objectives, usually specified in eight levels covering all years of schooling (1 to 13). The eight-level model is not a narrow, linear one, and the achievement objectives at each level is not strictly related to age or class level. Rather, the national achievement objectives identify, in levels of increasing cognitive complexity, outcomes which developing learners should be able to display through the course of their education.

### **Assessment Policies and Programs**

The NZCF holds that the primary purpose of assessment is to collect diagnostic and formative information. That is, the information from assessment of individual needs is taken into account in teaching and learning programs. Thus, most assessment activity in New Zealand is classroom-based and “teacher owned and operated.”

As each new curriculum statement is introduced, it enables more coherent, systematic, and clear reporting to students, parents and the wider community about what students actually do. Assessment is seen as an integral part of the curriculum and of the teaching and learning processes, particularly where problem-solving approaches and meaningful contexts are used. To assist teachers to implement the new curriculum statements and to develop new ways of assessing students’ progress, various teacher professional development programs are underway. The handbooks *Assessment: Policy to Practice* (1994) and *Developing Science Programs* (1995) are just two of a series of curriculum and assessment guides that further support assessment policies.

### **Entry-Level Assessment**

When children enter school in New Zealand, administrators are encouraged to employ the School Entry Assessment Kit (available also in a Maori version) in classrooms to assess all children within their second month at school. The kit includes three activities: a task, using a board game based on simple numerical concepts; observations of reading readiness, based on a commonly used diagnostic tool; and a language assessment rubric based on story re-telling. Schools are then encouraged to send their collated results to the Ministry for trend analysis.

### **Assessment Resource Banks**

The New Zealand Council for Education Research (NZCER) currently is developing

and field-testing assessment tasks in mathematics, science, and English based on the national achievement objectives in order to build resource banks. Teachers can find mathematics and science items or tasks in resource banks on the Internet and use them for diagnostic purposes or to compare performance within a school or classroom. The items also are available in print versions.

### **Assessment at the Secondary Level: Certification and Qualification**

The New Zealand Qualifications Authority (a government agency) administers national awards to secondary school students at the end of Years 11, 12 and 13. These awards are, respectively: New Zealand School Certificate; New Zealand Sixth Form Certificate; and New Zealand University Entrance, Bursaries and Scholarship. The New Zealand Qualifications Authority is also developing and implementing a new system that attempts to integrate all school qualifications into a single national framework. Most national qualifications are based on registered standards that explicitly specify the required level of achievement students must meet. Students earn credits based on evidence that he or she has met all performance criteria stated in the standard, upon which the obtained credit is entered on the student's Record of Learning.

The Minister of Education recently announced a new policy, Achievement 2001, which aims to integrate academic and vocational components of school qualifications so that students can earn credits towards a National Certificate of Educational Achievement at different levels. Achievement standards for conventional school subjects are being written based on the objectives in the national curriculum statements, and will include both internal and external assessment. Students will be able to obtain credits for successful achievement in other courses as well, and towards other certificates.

### **National Monitoring**

The principal aim of the National Education Monitoring Project (NEMP) is to show changes in national achievement over time. It does not provide information on individual students, teachers or schools. National monitoring took place for the first time in October 1995 in science, art and information skills. All areas of the curriculum, including skills and attitudes, are covered on a rolling four year cycle, with the second cycle to begin in 1999 allowing comparisons to be made with the results from the first cycle.

Each year, a 3 percent sample of 8-9 and 12-13 year old students is involved in the NEMP. Assessment tasks are administered by visiting teachers who are trained as test administrators. Each pair of visiting teachers remains in the school for one week working with 12 students over three days. The tasks, which use a variety of formats, are extensively field tested, and designed to show the full range of students' capabilities across the curriculum. The tasks are not tied explicitly to achievement objectives of the curriculum as one of the important goals of this monitoring is to provide evidence for curriculum review.

### **International Surveys of Achievement**

In addition to national assessments, New Zealand participates in international assessments. Since 1968, New Zealand has participated in projects organized by the International Association for the Evaluation of Educational Achievement (IEA), such as the Third International Mathematics and Science Study (TIMSS), to compare the achievement of their students with that of overseas students. New Zealand also plans to participate in the upcoming PISA study.

### **Current Issues**

In May 1998, *Assessment for Success in Primary Schools*, a public consultation document (or Green Paper) presented four proposals for additional assessment activities

the Ministry is considering developing—further diagnostic tools, exemplars of students' work, externally referenced tests, and modifications to NEMP. The Ministry received 1600 responses to the four proposals. These responses have been analyzed by a professional researcher, and a reference group has been established to advise on the further development and planned implementation of the proposals.

One current issue of intense interest related to these proposals is a fear that results of proposed national tests, as well as those of school-entry level assessment, will be published as school-by-school comparisons. Although the Ministry has stated that test results will not be published this way, educators remain suspicious of national testing, due to fears of possible misuse of data and a potential for narrowing of the curriculum and teaching to the test. Other issues, associated with the National Qualifications Framework, which *Achievement 2001* is designed to address, have been concern over the increased workload experienced by teachers in assessing students for credit for qualifications, and the maintenance of a dual qualifications system in secondary schools.

## Current Assessment Activities

Since July of 1998, various assessment activities have been underway in Network A countries. For instance, test construction, development, and training occurred in the following countries:

- **Germany** continued designing an assessment of problem-solving which will

be field tested in April of 1999 as a national option in PISA.

- In **Sweden**, national tests were constructed in Swedish, English, and mathematics for compulsory schools and in foreign languages, Swedish, and mathematics for upper secondary schools. Sweden also continued development of an assessment item bank.
- **Spain** began designing an evaluation of vocational training and an evaluation of upper secondary school.

There were several activities related to assessment occurring in **Turkey**, as well. Its Ministry of National Education continued with plans to standardize the assessment process in secondary schools. As part of that process, a new examination was pilot-tested in secondary schools. Meanwhile, they also analyzed data from achievement and attitude tests given to students in several computer-rich schools.

**Spain** is the only country that made note of reporting or dissemination activities: they are preparing reports on two evaluations of English and physical education programs.

This newsletter is published under the auspices of Network A. Network A, which is primarily concerned with indicators of student achievement, is one of four working groups that are part of OECD's international Indicators of Education Systems (INES) Project. The newsletter is prepared by Eugene Owen (Network A Chair) and Jay Moskowitz, Maria Stephens, Grace Choi, and Sterlina Harper, of the American Institutes for Research, with contributions from Network A members.

## Resources

Several countries made note of the following national reports and web-sites that may be useful for those in the education assessment community. We hope to continue expanding this section in the future to include more detailed information on the range of available resources in member countries. For further information, please refer to the correspondents listed on the back cover of this newsletter.

### National Reports

#### Canada

- Report of Education, 1997
- School Achievement Indicators Program: Mathematics Assessment, 1993
- School Achievement Indicators Program: Reading and Writing Assessment, 1994
- School Achievement Indicators Program: Science Assessment, 1996
- School Achievement Indicators Program: Mathematics Assessment, 1997

#### Czech Republic

- Report on the development and state of the Czech education system, 1995-96

#### Germany

- The Education System in the Federal Republic of Germany, 1997
- Handbuch für die Kultusministerkonferenz
- Grund-und Strukturdaten
- Numerical Barometer

#### New Zealand

- Annual school sector report to Parliament
- Reports on student achievement from the National Monitoring Project
- Three national TIMSS reports

#### Sweden

- TIMSS national report

- Report on results from national assessment at the end of compulsory schools, 1998

#### Turkey

- National Education Journal
- Announcement Bulletin
- Education Statistics

#### United Kingdom

- National Curriculum
- Qualification and Curriculum Authority's Standards Reports
- Two TIMSS national reports
- DfEE Annual Report
- DfEE National Results (booklets and leaflets)

### Web-Sites

#### Czech Republic

- Ministry—[www.msmt.cz](http://www.msmt.cz)

#### Finland

- Ministry—[www.minedu.fi](http://www.minedu.fi)
- National Board—[www.oph.fi](http://www.oph.fi)
- National Institute for Education Research—[www.jyu/tdk/ktl/](http://www.jyu/tdk/ktl/)

#### Germany

- *Deutscher Bildungsserver*—<http://dbs.schule.de/index.html>
- Max Planck Institute for Human Development—[www.mpib-berlin.mpg/DOK/ehome.htm](http://www.mpib-berlin.mpg/DOK/ehome.htm)

#### Sweden

- Ministry—[www.skolverket.se](http://www.skolverket.se)

#### Spain

- Ministry—<http://mec.es>
- National Institute for Quality and Evaluation—<http://vince.mec.es>

#### United States

- Department of Education—[www.ed.gov](http://www.ed.gov)

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