LEAD THE CHANGE SERIES

Q&A with Patrick Griffin

You are the Executive Director of the Assessment & Teaching of 21st Century Skills Project at the University of Melbourne. How are educational assessments changing to support 21st century skills?

There are four broad categories of 21st century skills with a common driver—the influence of technology:

1. **New ways of thinking**—creativity and critical thinking, innovation and problem-solving, decision-making and learning to learn, and metacognition.

2. **New tools for working**—information literacy and information and communication technology (ICT) literacy.

3. **New ways of working**—new forms of communication and collaboration.

4. **New ways of living**—local and global citizenship, life and career plans, social responsibility, cultural awareness and competence.

In the early period of the Project, it was important to understand the idea of 21st century skills and not to insist that all the skills were new—literacy and numeracy, science problem-solving, and other developmental learning skills remained important. In order to understand the assessment of 21st century skills, it was necessary to identify new skills that would become important in the 21st century and to describe the constructs that underpinned each of the new skills.

Traditional assessments and modern psychometric analyses make lots of assumptions about the nature of assessments. Multiple-choice tests of one form or another dominated assessments in the 20th century. International organizations such as the OECD have influenced assessment in the early part of the 21st century, and their forms of assessment have been largely conservative, following guidelines and procedures formulated in the 20th century. By 2015 the OECD plans to move data collection away from paper and pencil format to use the technology that becomes available for data collection and assessment.

The influence of technology on assessment will be profound. This will happen at both systemic and classroom level. It is likely that the
A distinction between formative and summative assessment may diminish as the efficiency of technology allows feedback to be received at both system and classroom levels in increasingly shorter amount of time. It is also likely that the nature of assessments will alter and that many of the long held assumptions concerning assessment design and analysis may be no longer relevant.

One change that may not take place is the insistence that we understand the nature of the construct that is being assessed. In this regard, the Project defined the constructs in operational terms so that new forms of assessment could be mapped onto the construct description of Collaborative Problem-Solving and Learning Through Digital Networks (the first two examples of 21st-century skills to be assessed in this Project). Many of the maxims of assessment design have been overturned in this Project. Students are encouraged to work collaboratively to solve problems or investigate issues. In one form of assessment, based on the serious games industry, the problem is obscure; ambiguity is deliberately embedded in the task; information is withheld so that the candidates must search for and provide information that may help resolve the problem or clarify the issue. These aspects alone constitute wide-ranging changes in assessment design.

Of the countries involved in the Project, Singapore is the one most likely to exemplify the ideas of 21st century skills. The Singapore education system has core characteristics and skills that it wishes for students to develop: character development; self-management skills; social and cooperative skills; literacy and numeracy; communication skills; information skills; thinking skills and creativity; and knowledge application.

These skills closely match the set of 21st century skills identified in the Project’s white papers. At the primary school level, students follow a six-year program aimed at giving them a grasp of the English language, mother tongue language, and mathematics. Students also study science, social studies, civics and moral education, music, art and crafts, health education and physical education. At the end of Primary 6, students take the Primary School Leaving Examination (PSLE), which assesses their suitability for secondary education and places them in the appropriate secondary school course that will match their learning pace, ability, and inclinations. It is not so much the content of the curriculum but the underlying emphasis on the 21st century skills that impresses.

At high school level, the curriculum consists of the core subjects and a choice of electives that includes humanities, science, and literature in Chinese. While this is a reasonably conservative curriculum, its content and assessment emphasize the eight 21st century skills listed above. It is not restructuring the curriculum that matters but how the curriculum is delivered in what is expected as outcomes.

As a Director of the Assessment Research Centre, what quality improvements have you seen in your Regional Network Evaluation project with the Victorian Department of Education?

The 2008 implementation of a network structure for government schools in Victoria was a bold move to shift the way that schools worked independently and to encourage a collaborative approach to improve student outcomes. It encouraged schools to take a collective responsibility for students in their local area and to work together to drive change. Its central focus was to improve the quality of the educational experience for students in a range of school improvement activities.
Both principals and Regional Network Leaders (RNL) reported that the structure and the role of the RNL had a strong impact in building the capacity of schools and teachers, particularly with regard to using data to inform teaching and leadership practice and in increasing school awareness of educational research on good practice, and have facilitated the identification and sharing of local examples of this practice. Both groups reported that principals were more willing to share school-level data and to support and challenge one another across networks.

The networks also helped increase alignment between system policy and school-based activities by providing a forum for discussion and for the identification of shared goals.

Both principals and RNLs were concerned about the range and pace of initiative rollout. The capacity of the RNLs to work with schools on National Literacy and Numeracy test data was improved by release of network-level data to RNLs either simultaneously with or as soon as possible following the release of school-level data. This was regarded as an important feature of the network leader’s role in helping schools and providing educational leadership. Many RNLs wanted to engage in a systematic and focused professional development to help schools use data to improve student learning. When this was conducted at network level evidence of success was widespread.

Examples of factors supporting network function:
- Cultural shifts across the system that placed a strong value on research, evidence-based practice, and moral purpose;
- The RNL role and the resource and knowledge embodied in the RNL position;

Factors impeding network function:
- Competition between schools for students and the implications of enrolments for funding;
- RNL and principal workload; and
- The pace and volume of initiative rollout in recent times.

Policy implementation was aided by:
- The professional RNL learning;
- Key support documents; and
- Local resources.

Factors perceived as hindering policy implementation:
- Data transfer and privacy issues;
- The need for clearer or more extensive guidelines from the Department of Education and Early Childhood Development on policy and practice in some areas; and
- Difficulties in identifying appropriate staff for some policy initiatives.

Together these data point to actions that many jurisdictions might consider ensuring that the network model and policy implementation are effective and consistent.

**You have led projects to develop assessments in Vietnam, Hong Kong, and the Philippines. How have the new assessments shaped educational change in these nations?**

Vietnam, Hong Kong, and the Philippines represent countries that recognize that while the nature of education and its role were changing, there was also a need to rethink the way education is measured and monitored. The OECD now examines educational yield in terms of the skills acquired, rather than the number of years of formal education completed. It does this through PISA.

Vietnam, Hong Kong, and the Philippines have seen considerable changes in
educational assessment practice. In all cases changes in curriculum were accompanied by shifts in assessment emphasis. In Vietnam, the importance of reading comprehension and mathematics as components of human capital development was recognized after reunification. In order to increase its competitiveness, the Vietnamese government sought ways to improve the quality of its education system and lay the foundation for a more active learning approach, better suited to the demands of globalization, continual rapid change towards a knowledge economy and a market-based economic system. The Ministry of Education and Training launched education reforms on various fronts. From 2002 onwards, new curricula and textbooks for primary schools were introduced. The general thrust of the curriculum reform was to modernize the content and methods of teaching and assessment to promote a more dynamic, flexible approach to learning. This new approach was expected to prepare a society in which basic skills in numeracy and literacy were central. The 2001 World Bank study of primary school output in Vietnam established two benchmarks. It examined how well pupils were prepared at the end of primary school to enter the community as independent citizens or to begin their lower secondary education as independent learners.

In the Philippines, the changing nature of education and socio-economic pressures appear to be requiring three benchmarks as the education system restructures from a 10-year curriculum to K-12/13-year curriculum. The first would identify students who had reached a level of competence that would enable them to function effectively as citizens. The second would be the level of competence that would enable students exiting the school system to be able to function effectively in the workplace and to be able to develop the skills needed to function and contribute to the Philippine economy. The third benchmark might identify students who have the capability to advance into higher education. The point about these benchmarks is that they may be established in a range of ways, not necessarily based on the use of formal examinations. There is a need to focus on the influence of technology on curriculum and assessment for the near future.

In Hong Kong, the school assessment and reporting approach is moving from a normative based system, emphasizing ranks, to a standards-referenced approach. The new approach emphasizes skills not scores. This is happening as the Hong Kong restructures its education system to a 3-3-4 system (three years junior secondary, three years upper secondary, and a four-year baccalaureate). This will replace a 7-3 system that has included the British A-levels equivalent at the end of secondary school followed by a three year baccalaureate. The new curriculum is being accompanied by a change in the emphasis on assessment with greater use of school-based assessment and competency oriented standards referenced reporting. Many systems might take the advantage to study what the Hong Kong Examinations Authority is planning to do and its procedures for implementation.

The widespread use of developmental progressions and proficiency levels means that schools in countries can focus on the development of skills or levels of competence rather than explaining variability in scores. Eventually this may be made easier by the advance of technology and the interactive models that have been developing in the 21st-century project.

Of the three countries I have been working in, only Hong Kong is in a position to adopt technology-based, 21st century
assessment and teaching strategies. The Hong Kong Examinations and Assessment Authority has made a decision to change the way senior secondary level examinations are reported to parents, teachers, schools, and students. This is accompanied by curriculum change and extensive professional development for teachers. Standards Referenced Reporting is a radical change in thinking and in practice and one that will no doubt meet resistance. However, it is likely to succeed and become a model of system level change and assessment in curriculum that many other countries might export.

In Vietnam the shift in the past 20 years from the Soviet nine-point classification scale to the use of modern psychometric calibration, item banks, and competency levels have ushered in new forms of assessment characterized by the methods used in the World Bank study in 2001. For the first time standards referenced data became available for monitoring at a national level and now, Vietnam is in a position with expertise and resources to join the PISA project. Involvement in such a large scale, technical project with an uncompromising and rigorous approach to assessment and data use will help Vietnam to move to even higher levels of sophistication in assessment.

From your experience, how do assessments impact teaching?

Possibly the most important skill that teachers need to develop on entry to the profession and to sustain during their tenure is how to use data to make decisions about individual student teaching and learning. Many large-scale testing programs tend to adopt a high-stakes emphasis which in turn tends to encourage teaching to the test. When scores and ranks are reported and pressure placed on teachers to improve scores, there is no focus other than the score, and the natural path taken is to teach to the test; no one believes that this is the way to teach math or reading, it just produces better scores. The greatest need in addressing this effect is to encourage teachers to teach to a construct underpinning test and standards referenced reporting as in Hong Kong. Teaching to improve a score does not encourage accountability in terms of practice. Reporting skills acquired or level of competence reached makes everyone accountable in terms of practice and outcomes in a more transparent way.

Teachers need to be shown how to develop assessments that will enable them to use evidence that students’ skills are developing. Teachers who can develop their own standards referenced framework quickly realize that the developmental learning progression or construct description that underpins the assessment is the more important aspect of assessment, teaching, and learning. The assessment tasks or evidence that the teachers use becomes a more transitory aspect of the teaching and learning.

Programs that focus teachers’ attention on the clinical use and interpretation of data (evidence of learning) need strong support from the school leadership. Like every other program for innovation, unless the school leadership is supportive, engaged in the process, and exhibiting and ownership of the idea, the program is likely to founder. School leadership also needs to know how to use data at an aggregate level in order to set instructional policy of school level.

What do you see as one of or the most pressing issue related to educational change today?

Possibly the most important thing that we have to keep addressing is the notion of
student learning outcomes. The project I am currently engaged in, 21st century skills assessment, has highlighted that demands on student outcomes may expand beyond traditional literacy, numeracy, and science to incorporate more of the creative, collaborative, and critical thinking outcomes. This comes with danger that the curriculum will be expanded and become even more crowded. While industry and governments like to see skills taught and assessed, something has to be surrendered in the curriculum in order to make room. The traditional subjects and assessment strategies will have to be rethought to enable this broader range of outcomes to be monitored.

The Singapore education system appears to have made considerable progress in this direction. When PISA 2015 assesses collaborative problem-solving and when countries are ranked relative to other countries, additional pressure might be exerted to change curriculum.

Children entering school today will exit the system in 2023-24 confronted by a completely different technological society, workplace, and learning environment. Education needs to prepare students for such a change and to move with the changes in the intervening period. The capacity of an education system to provide this preparation and to make adjustments to itself on a continuous basis is a major challenge. Adherence to traditional forms of assessment in curriculum may be counter-productive.

PATRICK GRIFFIN

Patrick Griffin is the Chair of Education (Assessment) at the University of Melbourne and Director of the Assessment Research Centre. He is the Associate Dean of the Melbourne Graduate School of Education. Professor Griffin was awarded the John Smythe medal for research in profiling literacy development. He is a project team leader for UNESCO in southern Africa, and was awarded, in 2005, a UNESCO Research Medal by the Assembly of Ministers of Education from Southern African nations. Professor Griffin is a World Bank consultant in Vietnam and China, leading national and international teams in studies of literacy and numeracy assessment. He developed a system of teacher assessment recently signed into law by the Vietnamese government and applied to more than 380,000 teachers. His work focuses on item response modelling applications in interpretive frameworks for criterion referenced assessment and its application of item response modelling to performance assessment. He is the executive director of the Assessment and Teaching of 21st Century Skills Project and has co-edited a forthcoming volume, Assessment and teaching of 21st century skills (Springer, 2011). He can be reached p.griffin@unimelb.edu.au.