Paper: Hopping Halfway to the Edge of the Pond: Measuring Progress towards Education For All

Author: Ian Kidd

Stream: International Development

Session: The Role of Education and Educators in Development - A Long Term Investment

Date/Time: Thursday 7 October, 09:00 AM - 10:30 AM
Paper Title: **Hopping Halfway to the Edge of the Pond: Measuring Progress towards Education For All**

Presenter: Ian Kidd

Abstract

The Millennium Development Goal (MDG) of Education For All (EFA) attempts to concentrate education resources on the early school grades, placing an emphasis on basic literacy, numeracy and life skills to make the curriculum more relevant to a majority of students. There is no common agreed way of assessing progress towards the goal. One measure is the number of children enrolled - though even this presents difficulties in comparison from country to country.

This paper examines measurable indicators of achievement, including attainment measures through exam results, achievement measured through surveys of students and standards-based assessment. In school, the curriculum may have limited relevance to the majority of students, with teacher-centred teaching and a tendency for the majority of students to leave without completing secondary school. School leaving exams can be a poor measure of the success of the education system, and of the capacity of students. Pass rates can be arbitrary and grades unrelated to standards.

The paper also examines recent changes to the national exam system in Cambodia and how the changing perception of the exam has influenced attitudes to school. The paper discusses a number of ideas related to the measurement of quality in education, the inertia inhibiting changes in educational thinking and the slow progress made towards achieving Education For All by 2015.

Paper

In 2000 the Millennium Declaration was signed by 147 countries. It listed eight worldwide Millennium Development Goals (MDGs) to be achieved by 2015. The second of these goals, Education For All (EFA), sometimes referred to as Universal Primary Education (UPE), aims to ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling. This goal was first expressed at the World Education Forums held in Jomtien in 1990 (which originally set the aim of reaching EFA by 2000) and again at the Dakar Forum held in 2000.

The Millennium Development Goals are shared, measurable, monitorable goals for the world to reach. There have been Monitoring Reports on these goals each year and a global review of progress is due in 2005. The eight MDGs include goals on hunger, poverty, HIV/AIDS and malaria, gender equality, child mortality, maternal health, environmental sustainability and the development of a global partnership for development.

Progress towards reaching the MDGs can be illustrated with an analogy. There was once a frog sitting on a lily pad in the middle of a pond. Wanting to get out of the pond, it hopped from the lily pad towards the side of the pond, reaching the halfway point. On its next hop it again made it halfway to the side. With each hop the frog covered half the distance to the side. If the pond was 6 metres across, how long would it take the frog to reach the side of the pond?

The second MDG, worldwide universal primary education, will entail:

- An emphasis on basic skills - Basic literacy and numeracy for all;
- 'life skills' to be included in the curriculum to make schooling more relevant to a majority of students;
- a shift in resources away from the 'top end' of the education system, that is, away from higher, further and upper secondary education towards primary education;
- gender equality in access to primary education and equal opportunity for achievement;
• a huge increase in numbers of children in school in developing countries. For many governments this will involve an increase in the number of teachers, schools, books, teacher training places, and trainer trainers. These targets will not be met without large increases in funding.

Per capita spending in education is often much higher at the 'top end', in upper secondary school and higher education, where there are fewer students. EFA concentrates resources on the early school grades, placing an emphasis on basic literacy, numeracy and life skills.

The Millennium Development Goal (MDG) of universal primary education measures and monitors achievement and progress in terms of:
- the net enrolment ratio\(^1\) in primary schooling in a country
- the adult literacy rate (adults are defined as 15+)
- the gender ratio
- "education quality" which is defined as survival rate to Grade 5 in primary education.
- whether schooling is free and compulsory.

EFA is a goal of quantity rather than quality; the survival rate or enrolment ratio is not in itself a measure of "a good education"; a measure of quality is also required. In addition, there was no commonly agreed way of measuring the net enrolment ratio in 2000, although criteria have been developed since then. There is not only a lack of standardised instruments, because measurement systems as well as educational systems differ, but also many countries do not have the resources to collect accurate data. One of the early issues flagged by the annual EFA Monitoring Reports is how to compare the quality of primary schooling in, for example, Haiti with the quality of the school system in Bangladesh. Using those statistics which are available may lead to a comparison of apples with pears.

What we do know is that according to the 2002 EFA Global Monitoring Report\(^2\) more than 100 million children in the world are still deprived of access to primary education and a number of countries are clearly not on track to universal provision. Some have actually been moving away from it. Nearly all out-of-school children live in developing countries and a majority of them are girls. The same report noted that it is not possible to report on detailed progress made since the Dakar Forum in 2000, because the most recent year for which data are available is 1999. Moreover, indicators to monitor education quality are often proxies of quality, or are available for only limited groups of countries.

If we are uncertain how to measure EFA, how will we know if we have achieved it? This paper looks at the issue of measurable indicators of achievement using Cambodia as a case study.

The starting point is the meaning of development and what national education systems aim to achieve.

According to Smith (1995), development is a process of change with consequences which are always open to controversy since judgement of both ends and means involves different value sets according to ideology, culture, and aspirations. Changes in social systems have consequences for national education systems which are not always rational or predictable.

Amartya Sen's 'capability approach' offers alternative criteria for judging development success; Sen notes that development occurs when people are more able to achieve what makes their lives valuable (Sen 1999). The objective of development is to promote and expand the freedom that people have to enjoy 'valuable beings and doings'.

Both education and development play a part in initiating change. National school systems clearly have a role to play in making people's lives more valuable. Among the goals of education are the development of social and individual values. Schooling aims to foster moral values, to communicate subject knowledge and to prepare students for life in the real world, the so-called "life skills" – of which more in a moment.

There has long been an inherent tension within school systems between preserving the status quo and bringing about social change. Is it the purpose of education to produce creative original thinkers who think, doubt, question, show scepticism and dissent? In many countries such notions are regarded as subversive and the national education system is intended to support the structure of authority, not to undermine it. Such education systems are often characterised by rote learning, the primacy of factual information, respect, loyalty and obedience. These are not only characteristics of totalitarian education systems, such values are

\(^1\) The gross enrolment rate includes those who may be over-age and repeaters who sit through the same year twice. The NER indicates the extent to which the target population is enrolled in school.

widely held in many countries today and the education system is expected to uphold and exemplify these values. National education systems are often used to uphold the ideology and value system of those in power.

One consequence of increased access to education may well be an increase in dissension or social instability. For governments with a tenuous grip on power, such consequences may be unwelcome. There are many governments who would view questions about their legitimacy or authority as an extremely unwelcome development. In spite of all the lip service that may be paid to the idea of Education For All, there is inertia and foot-dragging towards its adoption in some countries. Gender equality which goes hand in hand with EFA, is also an unwelcome concept in some cultures. And this is not to mention the economic cost of implementing Education For All; those countries which have the furthest to go to reach EFA are the same countries which can least afford to implement it. The lack of progress in reaching EFA is not simply a question of finance, it is also a question of ownership of the concept.

This is not to say that no progress has been made. Nowadays there is some degree of agreement on what is meant by basic standards in education. In Australia the Adelaide Declaration on National Goals for Schooling in the 21st Century states that by the time they leave school, students should have attained the skills of numeracy and English literacy; such that, every student should be numerate, able to read, write, spell and communicate at an appropriate level. These are common agreed national goals. State and Territory Education and Training Departments have similar goals. For example, the NSW Dept of Education & Training lists the following key priorities on its website:

"The key priority of public schools is to provide children and young people with the foundations for lifelong learning so that they become literate, numerate, well-educated citizens with the capabilities and confidence to make a positive contribution to our society. Public schools...deliver a curriculum that meets students' needs and aspirations, is relevant to today's world and is responsive to community expectations."

But while there is a degree of consensus on the basic skills, it is difficult to find agreement on the measurement of educational outcomes.

Three of the commonly recognised measures are achievement, attainment and standards.³ Attainment is the easiest to quantify as it represents the formal qualifications provided by the system, the national examinations that students sit and in which they are graded. However, cross-system comparisons are difficult. It is not easy to say whether the Higher School Certificate in Australia is equivalent to the Baccalaureate in France. Attainment in one school system with one set of objectives and exams may not be comparable to attainment in a different school system - apples and pears again. Similarly, attainment in a set of examinations needs to take account of the changing difficulty of the exam each year. How can a pass grade gained in 2002 on what may have been a relatively easy paper be compared with a similar pass gained in 2004 when the same subject paper may have been much more difficult?

Attainment is the easiest to specify of the three measures of educational outcomes. The second, achievement, is a measure of the cognitive development of students and is often measured by surveying or sampling the entire cohort. Achievement in this sense is characterised by literacy and generic skills, good citizenship, positive attitudes towards learning, healthy behaviour. and is usually measured though surveys of students. Administering the same survey in more than one country allows cross-country comparisons.

As an example, in 1999, the Government of Cambodia, UNDP and UNESCO conducted a comprehensive literacy assessment of Cambodia's population aged 15 and over. One element of the assessment evaluated literacy skills, using three levels of achievement:

- basic: the ability to tell the time from a clock face.
- medium: the ability to understand the address on a letter, a bus schedule with prices, a TV schedule, arrangements for a meeting, and identifying their province on a map;
- self-learning: awareness of how to prevent HIV/AIDS, and filling in a civil request for marriage.

Overall, in the survey 37% of respondents were classified as literate. Of those who were literate, 11% attained basic level, 64% reached medium level and 25% were considered self-learners (Ministry of Education, Youth and Sport (MoEYS), Kingdom of Cambodia, 2000). Separate results were not reported for the life skills element of the tests. Surveys of student achievement (in reading, maths, science and generic skills) are informative but complex, expensive and scarce.

Although 'life skills' are mentioned in the EFA MDG and promoted for inclusion in the curriculum to make learning more relevant, there is no clear common conception of what is meant by Life Skills. Among the definitions adopted by various education authorities are:

- acting autonomously & reflectively (UK)
- using tools interactively
- joining and functioning in socially heterogeneous groups (OECD)
- problem-solving and ability to work in teams (UK).
- survival skills, farming, cooking, living in the environment (Zimbabwe, Cambodia).

Once again, 'life skills' in the curriculum in one country may be completely different from life skills in another country.

Attainment data (school exam results) tend to predominate over achievement data because they are more easily measured. In countries where attainment is high, achievement can actually be low and vice versa.

The third measure I want to discuss here is the question of standards; the specified levels of achievement of the knowledge, skills and concepts that students are expected to learn in a subject. Standards can be described and used to report how well students perform against a set of written grades of achievement that increase in difficulty from the lowest grade to the highest. These descriptions of achievement for a subject remain the same from year to year. The grades act as bars set at different heights that show students how high they have to jump in order to attain the grade. The specification of these standards make it possible to compare examination systems between one country and another. Where these standards have been specified, answer papers in a national exam system can be graded with reference to the standards. For example, in the Grade 12 school leaving examination in Cambodia, the description for a Grade A student in Mathematics reads:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Excellent</td>
</tr>
<tr>
<td></td>
<td>Understands concepts consistently and thoroughly</td>
</tr>
<tr>
<td></td>
<td>Uses a wide range of advanced knowledge and high level skills accurately</td>
</tr>
<tr>
<td></td>
<td>Consistently solves a wide variety of complex problems using multiple steps almost faultlessly</td>
</tr>
<tr>
<td></td>
<td>Applies combinations of analytical mathematics, high level algebra, deductive reasoning and skills in figures to consistently solve problems effectively</td>
</tr>
<tr>
<td></td>
<td>Demonstrates very extensive skills in problem solving</td>
</tr>
<tr>
<td></td>
<td>Uses mathematical words, symbols, diagrams and graphs to solve difficult problems with well organised solutions.</td>
</tr>
</tbody>
</table>

Source: Subject Grade Descriptions for the Grade 12 Examination, Ward, J., CANEP, 2003

There are similar descriptions for each pass grade (A-E) and each subject in the Grade 12 school examinations in Cambodia. Such specified grades are useful to higher education institutions, employers, exam candidates and teachers and for comparing candidates from year to year to ensure consistency in exam standards. The level of Maths teaching in Cambodia is high. The Grade 12 Maths syllabus is rigorous and challenging and a Cambodian school student won a prize in an ASEAN school maths tournament for the first time in 2002.

All three of these measures are useful in comparing national education systems. But of course national assessment systems are usually well-developed for upper secondary school. Assessment mechanisms which allow meaningful comparison are often rudimentary or non-existent in primary schools.

I want to turn now to a case study and examine how attainment and standards are classified and measured at the school 'exit point' exams at Grade 12 (pre-University) in one developing country – Cambodia. This is based on the outcomes of a 6-year AusAID project in upper secondary education from 1997 to 2003. The aim of CANEP, the Cambodia-Australia National Examinations Project, was to improve and enhance the national secondary school exams in Cambodia, especially at Grade 12. One of the reasons for choosing the grade at the end of secondary school is that so much useful data is available from a relatively well-developed national examination system such as that in Cambodia.

Cambodia has a progressive and successful Sector-wide Approach (SWAp) in education with a high degree of integration and cooperation between donors and the Ministry. CANEP played an active role in the development of examinations policy through the SWAp and the Education Sector Support Program (ESSP).
Examination systems which are based on a pass or fail usually exclude some students from achieving a qualification or from continuing their study. At Grade 12 the aim is partly to ensure that the nation's best and brightest are given priority in the award of often limited numbers of higher education places. As students progress through the system there are a series of hurdles which have to be overcome in order to proceed to the next level; not all students make it to secondary education and fewer still make it to higher education. The education system is a pyramid in which ever-diminishing numbers of students continue to the next level. In such systems the majority of students who start school in grade 1 either do not continue or fail to qualify at the end of Grade 12. Economic necessity or family circumstances force many to quit before completing their schooling. Increasing recognition of the value of vocational education and its expansion in some countries (including the TAFE sector in Australia) in recent years has led to increasing numbers of students staying in education and gaining useful qualifications beyond the end of school.

The Cambodian national school exam system is one in which the concept of passing and failing has been firmly entrenched. Having students fail was viewed as 'protecting standards'. Before 2002, those who completed school but failed the Grade 12 exam left after 12 years of schooling with no certification of their achievement. An overall pass in the exam was obtained by aggregating the scores of the nine compulsory subjects in the exam, with extra weight given to Khmer literature, Maths and Physics. It was necessary to pass overall; there was no recognition of a pass in individual subjects. In 2001 the percentage pass rate overall for the national Grade 12 exam was 66.6%. Of the almost 30,000 candidates who sat the exam that year, 9,896 of them left school with no certification, no recognition of their time at school and no information about their performance.

Before changes to the exam system were introduced by the Ministry of Education, Youth and Sport with advice and support from CANEP in 2002, the national grade 12 examinations had the following features:

- "exam success" meant the achievement of an arbitrary pass mark with no attempt to relate the exam to a measurable standard of achievement;
- little distinction was made in the results between good candidates and mediocre ones. Although three pass grades could be awarded, the great majority of those who passed were awarded the lowest grade. In 2001, the year before the changes were introduced, over 84% of those who passed were awarded the lowest grade (Grade C) and only 0.06% of candidates were awarded the highest grade (Grade A);
- the national school examination system was not used to assess students for entry to higher education; higher education institutions had their own entrance tests and the Grade 12 school leaving exam had no currency with institutions or employers. Students in rural areas were penalised in comparison to students in Phnom Penh by having to come to the institution to sit one or more entrance tests if they wished to enter higher education;
- there was widespread malpractice at all stages of the exam; cheating has reached 'critical mass', so the incentive to cheat when all those around are cheating is greater than the incentive not to cheat. Malpractice greatly devalues the exam system and public confidence in it. The issue of exam cheating has not been eliminated and will take several years to control.
- Power was very centralised. To prevent leakage of exam questions, all exam papers at Grades 9 and 12 were set by four senior exam officials, including the Director of Secondary Education and the Head of the Exams Office in the 2 weeks immediately prior to the exams. At a time when these officials were needed to supervise the administration of the exams, they were locked in a secure area writing all the exam papers. As a result, the weeks leading up to the exams were characterised by frenzied activity. Exam questions often did not test higher skills and exam papers were often poorly designed and contained mistakes.
- exam scores for every paper and the exam as a whole were calculated by hand using several thousand exam markers, leaving open the possibility of inaccuracy and malpractice.
- there were 30,000 - 50,000 candidates for the Grade 12 exam each year (and 70,000 – 90,000 candidates for the Grade 9 exam). There are around 12,000 new places in higher education per year and Cambodia has an underdeveloped and undervalued vocational education sector.

As a result of the changes introduced by the Ministry of Education, Youth and Sport (MoEYS) in 2002:

- the exam system is more manageable: the exam timetable is spread over a longer period and is no longer characterised by frenzied activity in the weeks leading up to the exam;
- there has been a shift from a simple pass/fail in the exam overall to individual subject results. Students know which subjects they passed as well as their overall percentile rank.
- Certificates of achievement are awarded to students who fail the exam overall but pass in one or more subjects. In 2002, 87.5% of those who failed overall received certification of their achievement on leaving school for the first time.
- aspects of the system (including storage of questions) are computerised and, as a result, the system is more secure, reliable and able to cope with increasing numbers of students;
A sophisticated computerised Item Bank allows for a much greater range of exam questions to be set by a large number of subject specialists. Items (that is, individual questions written for inclusion in an exam) can be held securely for years. The Item Bank allows exam papers to be set quickly and guides exam setters in setting parameters and specifications for the exam. There were over 1,100 exam questions (or items) in the Item Bank before the 2003 exams were set. Item banking involves the establishment of a pool of high quality exam questions, electronically stored and categorised according to specified criteria. The first part of the process involves the writing and review of new items and modifying items which may have been used in previous exams. In the second part of the process, the item bank facilitates the writing of examination papers as it automates processes between the specification for the exam (such as the type of questions, topics to be covered, level of difficulty and number of marks for each question) and compilation of the items selected in the format required for the exam.

The advantages of computerisation are widely recognised in the Examinations Office. They include improved security and reliability (in reducing the opportunities for cheating), accuracy (although it takes longer to announce the results since computerisation) and record-keeping in order to monitor examiners. Administrative tasks have been automated, for example, generating classroom seating lists or ‘mail merging’ correspondence with exam officials. Hypothetical scenarios allow comparisons of pass rates to determine pass and grade levels;

Subject specialists have been trained as item writers, regular workshops and a quality control process ensure a steady supply of items to the Item Bank. The exam cycle starts much earlier in the year, about 6 months before the exams, but is less frenetic.

There has been a move towards a performance–based system of setting exam grades. Standards of performance were drawn up by subject specialists for every grade in each subject in 2003 and trialled in the exam that year. There is an understanding of criterion-referencing as the basis for exam grading.

The effect of these changes has been to improve the quality of the exam and to reduce the cost. There is increased recognition of the grade 12 examination results for entry to higher education, and consequently the national exam is accorded increased importance by candidates, parents and teachers. The changes are sustainable with a trained IT Support group in the Examinations Office and Procedures Manuals which document the technical operations.

The introduction of the computerised system has enabled the moderation of School-Based Assessment scores and exams are set in greater security than in the past. The item bank is used to store questions and produce exam papers. New items undergo peer review and quality control before admission to the item bank. Although exam malpractice is still a serious issue, parts of the exam system, such as producing and marking exam papers, have been tightened up, allowing resources to be concentrated in other areas. Following the lead set by the Grade 12 exams in developing performance standards, the Ministry of Education, Youth and Sport in Cambodia is currently drawing up performance standards for Grades 1 to 9.

There are of course still issues with the examination system in Cambodia. There is significant ‘urban bias’ in the results. Phnom Penh with 28 % of the total number of candidates in 2002, produced 50% of those who passed. There are better teachers and better school facilities in the capital than in rural areas. The best performing provinces in 2001 and 2002 were the two biggest cities. Grade distribution is still an issue: 97% of candidates who passed in 2002 were awarded grade D or E, only 3% scored A, B or C. Nonetheless, the changes have resulted in a more equitable system with a greatly increased number of students better able to achieve what makes their lives valuable.

Returning now to the MDG of EFA, is the world on track to achieve the EFA by 2015? The 2003 Monitoring Report notes that there are an insufficient range of comparable statistics available, ‘quality indicators’ tend to be measured by per capita spending, pupil/teacher ratios, or surveys of student achievement, which are only available for a small number of countries. No data is available on life skills. Progress towards UPE is measured on country Net Enrolment Ratios (NER). The latest EFA report (UNESCO, 2004) notes that 50 out of 126 countries (39%) had achieved UPE (=NER 95%+) by 1999. The report notes ‘trends’ and classifies countries according to whether they are moving towards or away from the goal.

<table>
<thead>
<tr>
<th>Trend</th>
<th>No of countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close to the goal but moving away</td>
<td>20</td>
</tr>
<tr>
<td>Close to the goal with a high chance of achieving it</td>
<td>21</td>
</tr>
<tr>
<td>Far away but moving closer towards the goal</td>
<td>16</td>
</tr>
<tr>
<td>Far away and moving away from the goal</td>
<td>21</td>
</tr>
</tbody>
</table>
Many of the countries which are still far from the goal are in Africa, especially sub-Saharan Africa. Cambodia is not included in these statistics as there is no data available. Where there is data available for Cambodia (e.g. the adult literacy rate) Cambodia is far from the goal and at serious risk of not achieving it (currently the adult literacy rate is less than 70%). Although the Gross Enrolment Ratio in primary school is over 100% this figure includes a large number of repeaters and over-age children. The current prognosis is that EFA will not be achieved by 2015, but the picture should be much clearer after the 2005 review.

What is interesting in all this is not just that we still have a long way to go to achieve EFA; it is also that we are still so far away from being able to measure how far countries have to travel to reach it. The goal initially set in Jomtien in 1990 was to reach EFA by the year 2000. Like the frog trying to reach the side of the pond, we must seriously question whether we will ever get there.

References

CANEP News issue 4, July 2002
CANEP Project Completion Report, CANEP, Cambodia, 2003
EFA Global Monitoring Report, UNESCO, 2002
EFA Global Monitoring Report, UNESCO, 2004
NSW Dept of Education and Training www.schools.nsw.edu.au
Sen, A., (1999), Development as Freedom, OUP
Ward, J., (2003) Subject Grade Descriptions for the Grade 12 Examination, Cambodia-Australia National Examinations Project, (CANEP), Cambodia