Open Schooling and Teacher Education in a 21st Century Educational Ecosystem

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Summary

The challenge of getting all of the world's children through primary school - let alone bringing in the 400 million 12-to-17 year olds who are not in secondary school - cannot be addressed by business as usual. Two important parts of the answer are open schooling (or flexi-schooling) and classroom-focused in-service teacher education. Both rely on the use of distance learning at scale.

Introduction

Thank you for inviting me to speak at the beginning of this event. It is good to be in London again.

However, in this address I am going to take you out of London and immerse you in the global challenge that we call the campaign for Education for All.

We can date this campaign back to the world conference on education for all that convened in Jomtien, Thailand in 1990. It was convened becausein 1985 some 105 million children aged between six and eleven were not in school, the majority of them girls. Forecasts suggested that the number of out-of-school children might double to 200 million by 2000.

At Jomtien 155 governments and various international organisations and NGOs committed themselves to a set of targets covering education at various levels. However, on the primary indicator of children in school, Jomtien was a failure because a decade later the number of children out of school had grown to 125 million. There were various reasons for this which I won't go into – you will recall that the 1990s were a pretty turbulent decade.

So the international community decided to hit the nail harder and convened another world forum on education for all in Dakar, Senegal in 2000. The Forum again came up with a set of targets but this time put more effective mechanisms in place for supporting countries that wanted to make progress.

As a result of this, and to cut a long story short, much faster progress was made towards Universal Primary Education in the decade from 2001 to 2010. We are not there year, but large countries like India and Bangladesh are making big strides. Nigeria and Pakistan are the biggest remaining challenge.

These figures are the background to a book that I published last year with the title: *Mega-Schools. Technology and Teachers: Achieving Education for All*. Essentially the book examines the consequences of both the successes and the failures of the campaign for Universal Primary Education.

The success is that enrolment rates have increased significantly. The numbers in school have increased substantially representing a tremendous input of resources and effort by developing countries.

The flip side is the failure. Many children are still not in school. It is hard to forecast the precise numbers of primary age children who will still be out of school by 2015 – a lot depends on how fast the economic downturn ends – but the estimates range around 72 million – more than the total population of the UK.

This is the starting point for the book, which addresses both the challenge of success and the challenge of failure.

The challenge of success is the secondary surge. The challenge of failure is the need to train more teachers.

Part of the book is about expanding secondary education. The other part is about expanding teacher education.

Let's start with secondary education.

My first point is that the numbers are very considerable. Up to 400 million children from 12 to 17 are not in school. Of course some children, like these, are well catered for.

But others are not so lucky.

In the book I rehearse several arguments for the importance of secondary education but the only one I shall use today is that secondary schooling is the best medium-term weapon against climate change. That is because the most powerful driver of climate change is increasing population.

Since the industrial revolution the world population has grown by a factor of seven and each human being today, on average, makes seven times greater demands on the earth's resources. That's a fifty-fold increase in humanity's impact on our planet in two centuries.

Slowing population growth is one way of limiting that demand. Women with secondary education have, on average, 1.5 fewer children than those without. A difference of one child per woman means 3 billion more or fewer people on the planet by 2050. Secondary education for girls must be a priority.

Expanding secondary education is – or soon will be – the key priority for many developing countries. Yet in a time of economic difficulty countries need to strive for greater efficiency – and in many countries secondary education is not at all efficient.

You may be aware of Professor Keith Lewin's finding that if the unit cost of secondary education is more than double the unit cost of primary education a country will never achieve universal secondary education. Yet in many African countries the multiple is far greater than two.

Hence, I stress the importance of expanding open schooling, similar to what you call flexi-schooling, which is an adaptation of the methods of distance learning. But I do not simply propose the creation and expansion of open schools as a separate and distinct element within national school systems. Open schools should be seen as catalysts for integrating all elements of schooling into an educational ecosystem fit for the 21st century.

The key point is that it will not be possible to accommodate the secondary surge through the conventional provision of secondary schooling, skills training and adult education. Governments must encourage alternative approaches and foster providers that can deliver quality learning at scale with low costs.

Developing and expanding open schooling are particularly promising alternatives that can also be integrated with other approaches to make them more cost-effective and cost-efficient. An integrated approach also holds the promise of providing education that is better adapted to the needs of the 21st century.

It can blur the unhelpful distinction between formal and non-formal education; build a bridge between knowledge acquisition and skills development; and has the potential to reduce the inequalities of access that blight conventional provision in most countries. Very importantly, open schooling is less expensive than conventional schooling and the differential is increasing.

Many assume that information and communications technologies can expand quality education cost-effectively. Let me explore that for a moment.

The first question is how technology can boost access to schooling. I start with the basics.

Ministers of Education will tell you that their challenge is to pursue three goals simultaneously. They want to widen access so that education and training can be available to all who aspire to it.

Second, that education must be of good quality. There is no point in widening access unless education makes a difference to people's capabilities.

Third, the cost must be as low as possible. Governments and individuals never have enough money. It is morally wrong to make education more expensive than necessary, because low cost enables more people to take advantage of it.

But the challenge of achieving these outcomes simultaneously becomes clear when you create a triangle of vectors. With traditional methods of face-to-face teaching this is an iron triangle.

This iron triangle symbolises the closed system of classroom teaching. You want to stretch the triangle like this to give greater access, higher quality and lower costs. But you can't!

Try extending access by packing more students into each classroom and you will be accused of damaging quality. Try improving quality by providing more and better learning resources and the cost will go up. Try cutting costs and you will endanger both access and quality.

This iron triangle has hindered the expansion of education throughout history. It has created in the public mind – and maybe in your own thinking – an insidious link between quality and exclusivity. This link still drives the admission policies of many universities, which define their quality by the people they exclude.

But today there is good news. Thanks to globalisation successive waves of technology are sweeping the world – and technology can transform the iron triangle into a flexible triangle.

The Revolutions of Technology

By using the technology of distance education you can achieve wider access, higher quality and lower cost *all at the same time*. This is a revolution – it has never happened before. This is what educational technology can achieve if used properly.

How does technology work? Some people distinguish several generations of technology but I shall content myself with two: the productive technology that drove the industrial revolution and the digital technology that surrounds us today. Each of these manifestations of technology has important strengths and we shall do best if we combine them.

The fundamental principles of productive technology, articulated two centuries ago by the economist Adam Smith, are division of labour, specialisation, economies of scale, and the use of machines and communications media. These principles remain very important to the aims of increasing access, cutting costs and improving quality. People often forget these principles when they launch into eLearning – which is why eLearning so often disappoints.

Digital technology has not yet had a giant intellect like Adam Smith to clarify its essential nature for us but, appropriately perhaps for something essentially unstructured, the concepts of networks, connectedness, collaboration and community capture elements of it.

For us a key question is: what does the incorporation of digital technology add to the use of productive technology – and is it scalable? The aim is increased access, better quality and lower costs. There are 400 million children lacking secondary schooling.

Open Schools and Mega-Schools

Fifteen years ago I coined the term 'mega-university' for large distance-teaching universities and set the threshold at 100,000 active students. The number and size of mega-universities has expanded significantly since I first used the word.

Secondary schools are usually much smaller than universities, so in this book I define a mega-school as an open school with more than 10,000 active pupils. In the school sector this is an indication of useful scale, even though some open schools in high population countries much larger enrolments, exceeding a million in the cases of India, Mexico and Indonesia. But even small countries can have mega-schools. The total population of Namibia is only 2 million, yet the 28,000 secondary students in the Namibian College of Open Learning (NAMCOL) account for 40% of the country's secondary enrolment.

The Commonwealth of Learning promotes the concept of an integrative open school that is placed at the heart of the whole school system in order to improve the quality and reach of that system, to be a source of innovation, and to act as a catalyst for reform.

For most educational authorities the pressing issue is to make the conventional system more effective and improve its quality. How can open schooling help? UNESCO conducted a thorough review of what makes for effectiveness and quality in schooling

From this we can construct a list of desirable features that could be obtained more readily by having an open school as a resource for the whole school system:

· good learning materials

· focus on the curriculum

· regular, reliable, and timely assessment of learning

· pedagogical materials for teachers

· relevant content

· teaching of reading and writing

· structured teaching: direct instruction, guided practice and independent learning

· appropriate language of instruction

· larger classes if accompanied by better inputs (assistants, materials, etc.).

Open schools can help national schools systems with many of the items on this list. Having a source of good learning and assessment materials is a particularly important foundation of effectiveness that supports other elements of quality, such as focus on the curriculum and pedagogical materials for teachers.

Today learning materials can be produced and shared in a very modern way as open educational resources and, more generally open schools can be a leaven for the entire school system. COL's work with the Hewlett Foundation is helping countries collaborate in the production of learning materials for senior secondary schooling.

The Collaborative Creation of Learning Materials

Open schools have to produce learning materials, usually in a variety of formats. These materials have always been useful to the conventional schools. Two developments have made the learning materials produced by open schools potentially even more useful to the wider school system.

First, most learning materials are now developed in digital formats, even though they may eventually reach students in the form of printed materials. Holding materials electronically has three advantages: they are easy to move around; they can readily be adapted and revised; and they can be converted to eLearning formats when online learning becomes a possibility.

Second, COL is part of growing movement, inspired by the ideal that knowledge is the common wealth of humankind, to create a global intellectual commons in which learning materials are shared. This movement involves many thousands of teachers, at all levels, creating open educational resources (OERs).

The William and Flora Hewlett Foundation is supporting COL's OER work in open schools through a programme that combines the professional development of teachers with the development of OERs. 20 sets of self-instructional learning materials on the senior secondary curriculum will be completed this year in six developing countries: Botswana, Lesotho, Namibia, Seychelles, Trinidad & Tobago and Zambia.

This material will be suitable for use in both open and conventional schools and will permit open schools to offer current and new subjects through print and online teaching.

Open schools can also help whole school systems implement computing. Collaborative projects in OER curriculum development can help to create locally adapted eLearning materials of quality that are always in short supply. Moreover, since open schools have to be technologically savvy to take advantage of new developments for their own students they are a natural source of expertise for wider use.

I conclude that we are seeing the beginnings of a process that will lead to much closer integration between open schooling and conventional schooling. Materials that are aimed, in the first instance, at the pupils of open school will very quickly find their way into conventional classrooms.

Expanding Teacher Education

I turn now to the second part of the book, which is about the need to expand teacher recruitment and education in order to complete the drive to universal primary education and to expand secondary schooling.

Expanding secondary schooling is primarily a challenge for developing countries but recruiting and educating large numbers of teachers is a necessity for rich and poor countries alike. In the last decade, for example, California was employing 30,000 untrained teachers in its schools.

Putting all this together UNESCO estimates that at least 10 million additional teachers will be needed worldwide by the middle of this decade if Universal Primary Education is to be achieved and a serious start made on expanding secondary education.

In the book I focus on two related aspects of teacher education. First, how can we recruit and train more teachers more rapidly? Second, what kind of training is best suited to the needs of the second decade of the 21stcentury?

Teacher recruitment

First, let me comment on teacher recruitment. As you might expect, there is a three-way correlation between the status of the teaching profession in a country, the performance of its schools and children, and the ease of recruiting able people as teachers. In countries like Austria, Canada, Finland, France, Germany and Ireland teacher recruitment and retention is not a major issue. Teaching is a high status profession and most of these countries score highly on international surveys of pupil performance such as PISA.

Sadly, however, the status of teaching is declining in most countries and the blame for this lies with both teachers and governments. Where teacher absenteeism is a constant problem the public cannot be expected to admire teachers. Where governments have eroded teachers' salaries and the deployment of teachers is infested with corruption good people will not be attracted to the profession.

A century ago the Irish playwright George Bernard Shaw (1903) made the oft-repeated remark that 'those who can do; those who can't teach'. But today's knowledge economy has stood this mean comment on its head. The training and skills that teachers acquire are highly valued in the contemporary labour market. Indeed, your Secret Intelligence Service, MI5, advertised for teachers two years ago, seeking their 'relationship-building skills'.

The combination of the low status of the profession and the attractiveness of teachers' skills in the wider labour market no doubt explains why 50% of teachers in the US leave the profession within five years of completing their training.

Faced with the problem of teacher shortage and the necessity of putting an adult in front of each class of children, at least in primary school, many governments have had to resort to employing untrained teachers, as in the example of the 30,000 untrained teachers in California that we noted earlier.

However, sending people into the classroom with minimal initial training can be a very good strategy for our times if they are then provided with appropriate on-the-job training. From all I hear the UK's programme,*Teach First,* which does just that, has been a considerable success.

Teacher education

My book follows others, such as Professor Bob Moon, in arguing that the concept of teacher education needs radical revision. It argues that locus of continuous professional learning must be the school and its focus must be the classroom. This has always been the strength of distance learning systems for teacher education.

Distance learning in teacher education

Information and communications technologies – and the possibility of open educational resources that they have created – have significantly increased the power of distance learning in teacher education. However it is not new.

In my book I give profiles of eight successful applications, going back to PERMAMA, an in-service programme for Quebec Mathematics Teachers that I worked on in the early 1970s. The impact of this programme is still being felt in the very high performance of Quebec pupils in the PISA mathematical literacy surveys.

Open educational resources are already making a powerful contribution to teacher education in Africa.

My book includes a profile of a programme of Teacher Education in Sub-Saharan Africa abbreviated as TESSA. TESSA is a consortium of 13 African universities, the UK Open University and five international organisations including COL. It works across nine African countries by creating teacher education materials in Arabic, English, French and Kiswahili. Last year nearly half a million African teachers worked with materials and resources produced through the TESSA community. Since these are classroom-based in-service materials they have a direct impact on millions of children through their use in the classroom.

Because they are open educational resources, institutions and schools can adapt them to their needs. For example, Nigeria's National Teachers' Institute, one of the world's largest programmes of teacher education at a distance, uses the materials differently from the University of Fort Hare in South Africa, which has developed a distance learning programme for teacher education alongside its campus offerings because it could see that the campus programmes were not reaching most of the teachers who needed continuous professional development.

To sum up: I have placed our debates on teacher education in the context of the increasingly successful campaign to achieve Universal Primary Education. The success of that campaign has generated the imperative of a massive expansion of secondary education. That expansion, and serving the 70 million children projected not have access to primary school by 2015, generate a requirement for many more teachers, which UNESCO estimates conservatively at 10 million.

I propose that teacher education needs radical rethinking to meet these challenges – and not just in developing countries. Henceforward the policy should be to put teachers into schools with the minimum training necessary for them to function, and then to concentrate the major resources of teacher education on recurrent in-service programmes of professional learning that are resolutely based on school practice and the classroom experience.

Once that paradigm shift is made, all teacher education institutions will have to give themselves the capability to offer distance learning programmes in order to reach teachers in their schools. Today information and communications technology can make distance learning a richer experience than learning in a university classroom. Furthermore, drawing on the growing body of open educational resources allows institutions to take materials of world-class quality and adapt them to local conditions in a thoroughly authentic manner.

Finally, and most importantly, the evidence suggests that this approach of classroom-based in-service education is successful where it most counts: that is to say in the learning and performance of the children.

Conclusion

I conclude, therefore, that an effective 21st century educational ecosystem must include an open schooling system and bring teacher education right into the classroom.

Let me end there. I thank my COL colleagues Frances Ferreira and Abdurrahman Umar for inspiring me through their work in these important areas

If my remarks have sparked your interest in the global education challenge then you can always read the book.

Thank you.