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Education Aid Effectiveness:

**The Need to Rethink the Allocation of Education Aid
to Enhance its Impact**



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SPECIAL ISSUE

Education Aid Effectiveness: The Need to Rethink the Allocation of Education Aid to Enhance its Impact

Editorial

Most of the international debate on education aid focuses on advocacy for increasing the *volume* of such aid, especially to attain the Education for All (EFA) and Millennium Development Goals (MDGs). And most of the concerns regarding aid effectiveness focus on enhancing the *technical efficiency* of delivery and use of aid by reducing aid fragmentation through greater coordination and harmonization, developing more efficient aid instruments, channeling more aid through national systems, and ensuring greater aid predictability. Donor agencies have also worked with aid recipient countries to improve the efficiency with which the aid that is provided for a *given purpose* is used by strengthening country ownership, improving governance, and developing institutional capacity. Since 2005, this work has been conducted within the framework of the “Paris Declaration on Aid Effectiveness.”

It is important to improve the technical efficiency of aid through the above types of measures. However, by far the largest share of education expenditures is funded by domestic resources in most low-income countries. Therefore, what can be gained from more efficient delivery and use of aid is limited if the aid is not *allocated efficiently* to ensure that it:

- *Adds to – rather than substitutes for –* domestic funding, and
- *Is deployed strategically* where it can promote most effective use of *total domestic and external education funding* in reaching national and global development goals.

Little attention is given in the international aid debate to assessing these *allocative efficiency* aspects of education aid. How should aid be allocated, for example, by education sub-sector, purpose, and country, *to maximize the catalytic impact of any given level of aid?* And even less attention is paid to how different ways of using a given level of aid may mitigate *harmful aid dependency risks* arising from the unprecedentedly high level and long duration of aid dependency in many countries especially in Sub-Saharan Africa (SSA). Even if aid is delivered and used efficiently, its effectiveness is reduced if the aid is not used where it can have the strongest catalytic impact or if it is used in a manner that creates harmful aid dependencies.

This special issue of the JICE explores the scope for enhancing the effectiveness

of education aid within this more holistic framework. In doing so, the purpose is *not* to discuss what an “appropriate level” of aid for education might be, but to explore ways of increasing the effectiveness of *any given level of aid* through more strategic allocation and use. For *individual countries*, this means rethinking the distribution of aid between different levels and types of education, between financial and technical aid, and between different purposes to maximize the impact of aid on total resource use in the sector. At the *international level*, this means reassessing the unequal distribution of aid among countries, as well as the limited attention giving to developing/revitalizing partnerships, networks, and institutions producing *regional and global public goods* in the education sector.

In the “overview article” following this editorial I try to clarify some questions involved in a reflection on how to enhance the allocative efficiency of education aid. For example, what is the difference between *technical* and *allocative* efficiency of education aid? What is the degree of fungibility between *aid* and *domestic funding* and the degree of *additionality* of aid to domestic funding? In which areas does aid have *comparative advantage* over domestic funding, and how should aid priorities evolve to respond effectively to emerging challenges? Does efforts by donors to target aid on particular purposes conflict with the call of the “Paris Declaration” to align aid with national strategies, institutions and procedures? What should be the trade-off between, respectively, *technical* and *financial* aid; aid for countries “*on track*” versus those “*off-track*” to reach the EFA goals; and aid for *individual countries* versus support for *global and regional public goods*?

The article notes that the international aid architecture does not have an effective mechanism for monitoring the extent to which decisions on aid allocation made by each donor country and agency add up to anything approaching an “optimal” distribution of *total* education aid by e.g., education sub-sector, purpose, and country, in order to maximize the impact of aid on national and global development goals. In particular, little progress has been made in addressing concerns about the need to improve the provision and funding of *global public goods* in the education sector, including the declining capacity of aid agencies to provide high-quality technical support. This undermines the overall effectiveness of education aid, including by limiting the impact of country-specific aid because of the positive synergy between such aid and public goods provided through various types of international technical cooperation¹. Similarly, despite the unprecedented length of high aid dependency in SSA countries, the frequent calls for more aid is not

¹ The shortage of funding for regional activities was recognized by African ministers of finance and of education at a conference in July 2009, organized jointly by the African Development Bank, the Association for the Development of Education in Africa (ADEA) and the World Bank to discuss education financing during the current economic slowdown. Several ministers noted that because countries compete for external aid to address national concerns, they give too little attention to mobilizing resources for addressing pan-African issues, and ministers argued for allocating more resources for this purpose both by donors *and* by African countries (World Bank, 2010, page xi).

accompanied with systematic efforts to ensure that the aid is used strategically to enhance its catalytic impact, including by mitigation harmful effects of the prolonged high levels of aid dependency.

The article concludes by calling for a more proactive international effort to clarify the scope for enhancing the effectiveness of education aid through more efficient allocation and use, and for more effective global coordination to implement any strategy resulting from such work. It notes that since the 2000 Dakar Education Forum, there has been much focus on, and progress in, increasing aid effectiveness by helping low-income countries to develop better quality sector plans, more evidenced-based decision-making processes, and stronger implementation capacity. The same degree of attention has not been paid to the potential for increasing the catalytic impact of education aid through better quality decision-making and follow-up on aid allocation and coordination matters *by donor countries and agencies*. To do so should be the next phase in the ongoing struggle to enhance the effectiveness of education aid.

The next two articles discuss how three OECD countries – Japan, Korea, and Mexico – used external expertise and funding to catalytically enhance their education development.

Kazuhiro Yoshida analyzes the approach followed by Japan to internalize advanced Western technology and to develop its human resource at the time Japan embarked on its major efforts to industrialize during the later part of the 19th century, known as “the Meiji era”. The author examines how Japan addressed three major challenges present-day developing countries face with respect to skills development: training policies, relevance of training, and financing of public provision of training. Based on a case study of the development of the iron and steel industry in Japan, the article describes the strategic choices made by the government with respect to aspects such as: technology; its dual roles of both directly managing the industry and stimulating the growth of private industry; the extent to which the government made conscious efforts to use the existing socio-economic system related to the industry; and how it used local resources rather than depending on foreign loans to fund training abroad, use of foreign experts and importation of Western technology. The government initially depended on foreign experts, but gradually replaced them with nationals who were initially trained abroad and later at institutions developed at home to train higher level and, later, middle-level skilled workers.

It is interesting to note that many of the factors that were central to the success of the countries that achieved sustained economic growth at a high level over the last half century were present in the policies and approaches adapted by Japan during the Meiji era. Japan’s experience during its early industrialization is also interesting from the point of view of the importance given to learning from other countries and cultures long before

the existence of development aid. The experience also illustrates well how success in using technology developed under other cultural and socio-economic contexts depends on the extent to which a country manages to adapt such technology to local technology and socio-economic conditions. The capacity to do so has also proven crucial to successful use of imported technology by present-day developing countries as well as by some European countries that started their industrialization process comparatively late, such as Norway².

Kye Woo Lee's contrasts the use of external assistance for education in the Republic of Korea with that of Mexico, focusing on borrowing for education from the World Bank. Many studies have examined the role of investment in education in explaining Korea's impressive economic growth record during the last half of the 20th century. The author notes that, expressed in per capita terms, Korea did not spend more on education than other countries at a comparable level of income, and nor did Korea allocate a greater share of foreign assistance, including from the World Bank, to the education sector. Rather, Korea used its education investments more effectively than most other countries, including by aligning the priorities and sequencing of education investments very closely with national development strategies³. In particular, Korea used World Bank funding consistently and efficiently over time to upgrade skill levels of the labor force in response to labor market demands, and in a way that rapidly built institutional capacity through strong leadership and ownership by government institutions. Korea also gave high priority to analytical work to underpin its education investments, often working in close cooperation with the World Bank.

The author concludes that this greater emphasis on analytical work to ensure high-quality education policies, combined with conducting the analytical work, policy formulation, and implementation in ways that built national capacity and ownership, contributed to the more efficient investment in education in Korea than in Mexico. In turn, this difference in the effectiveness of such investments helps explain the difference in economic growth between the two countries.

In the next article, **Kenneth King** studies China's support for education and training in Africa, with particular emphasis on South Africa and on how China's approach differs from that of traditional Western donors. Much attention has been given to China's huge

² For example, Bergh et al. (1980, 123-124) note that: "Norwegian industrial development since 1830 clearly illustrates the importance of the ability to assimilate large doses of foreign technology at an acceptable rate. The mechanisms of diffusing and adapting well-established technology to local conditions ... seem to have functioned well. Norway profited from the advantages of a late start, having been able to exploit both knowledge and equipment developed by others".

³ Fredriksen and Tan (2008) arrived at a similar conclusion when comparing East Asian and Sub-Saharan African countries' on aspects such as education policies; sequencing of education reforms and aligning them with overall national development strategies; capacity-building; and catalytic use of external resources.

investments in Africa this decade; much less attention has been given to China's rapidly increasing support for education and training. However, as noted by King, while often included among "emerging donors," China's support for Africa dates back to the 1950s, though it has increased rapidly over the last decade, especially through the Forum for China-Africa Cooperation (FOCAC). But in addition to support provided within this pan-African framework, China maintains strong bilateral relationships with almost all African countries.

In analyzing the differences between China and more traditional donors such as France and the UK, King notes that China does not cooperate with a special sub-set of countries based on historical, linguistic, economic, or geographical ties. Rather, like Japan, China would argue that its cooperation is basically responding to demands from countries. In addition, unlike traditional agencies such as DfID and USAID (but like Japan, though this is changing), Chinese education aid is largely managed by generalists rather than education specialists. Furthermore, education cooperation is not considered a stand-alone sector; this is illustrated by the fact that, unlike other major donors, China does not appear to have an "education sector policy" governing its education aid. A lot of this support is provided through important capacity-building elements associated with large Chinese investment projects. Finally, King highlights the particular role that China's "Confucius Institutes" play in the country's international cooperation, including responding to a widespread interest in many countries for acquiring expertise in Chinese. This interest is in turn inseparable from the very visible presence of Chinese enterprise, industry, and commerce throughout Africa.

As noted by King, China does not actively participate in aid harmonization efforts. As discussed in the "overview article", in order to limit aid volatility and ensure that new aid is used where it has the highest impact, it is important for recipient countries to ensure that the aid received from new donors is coordinated with support received from other partners. Also, new donors may want to explore giving higher priority than traditional donors to supporting, for example, peer learning and knowledge exchange through "south-south" cooperation, as well as other regional and global public good functions.

The two following articles focus on the provision of global public goods in the education sector. The one by **Nicholas Burnett** discusses both the urgency and the complexity of reforming UNESCO, the organization established to play the leading global public good function in the education sector. The author draws on his personal experience as UNESCO's Assistant Director General for Education during the period 2007-09. He argues that the world needs more public goods in education, especially statistics, research and shared experience, and that UNESCO should be the place to turn for these public goods. However, the organization's politicization and limited technical and human resources mean that it cannot at present fulfill that role, a role now partially

filled by others, all of whom wish that UNESCO were a stronger institution. UNESCO also spends too much time defending its education “mandate” as it was defined when the agency was established and it was alone in the sector, and not sufficient time at adapting to the realities of the current situation and at playing well its leadership role in the present aid architecture.

Despite these difficulties, reform is possible as two achievements of the past decade demonstrate: The establishment of the UNESCO Institute for Statistics and of the Education for All Global Monitoring Report. But the fact that both had to be established at arm’s-length distance from UNESCO also illustrates some of the problems hampering the organization’s effectiveness. Success will require tackling several issues simultaneously, many of them concerning more UNESCO’s overall budget and human resources policies and practices than issues specific to its education sector. Therefore, successful reforms of the education sector will require both strong leadership by the Director General and increased awareness by UNESCO’s governing bodies and senior management about the urgency to reform the institution. The author also notes that some transitional finance will be required to facilitate structural change but that such funding should be linked to efficiency gains.

While not directly dealt with in Burnett’s article, because of the synergy noted above between country-specific aid and global public good functions, even the effectiveness of *country-specific aid would be likely to improve* if donors were to work more systematically to strengthen the capacity of regional and global public good education institutions.

Digby Geoffrey Smith addresses the global public good question from a different angle. He notes that the MDGs drive the international development agenda in the education sector. Given that the MDGs include only two education goals – universal completion of primary education and gender equity in primary and secondary education – does this focus on the MDGs distort the sector’s ability to promote broader global public goods, such as political, environmental, and demographic stability? Is this focus on a part of the education system likely to be beneficial or harmful to the impact of education on such broader global public goods? This question goes beyond the more limited public good aspects dealt with in the other articles, which focus on ensuring that education aid enables all countries to benefit from global knowledge assets and expertise, so as to maximize the aid’s impact on the sector’s ability to reach national and international development goals.

In analyzing this question, Smith discusses how different types of investments in different levels and types of education are likely to impact political, environmental, and demographic stability, and applies this analysis to the situation in SSA as well as to the particular case of education and population growth in Yemen. He concludes that while

reaching the MDGs is crucial in promoting these broader public goods, this focus would be even more helpful if it were better integrated in a broader sectoral approach giving adequate attention to investments in other types and levels of education as well. This said, the author notes that any constraints on investments in other levels and types of education that might arise from the focus on the MDGs are likely to be minor compared with those arising from factors such as poor policies, weak management, and insufficient accountability.

The next two articles provide examples of effective networks to promote regional knowledge-sharing, peer learning, and “south-south” cooperation. **Marito Garcia** and **Alan Pence** describe the development of a network on Early Childhood Development (ECD) in SSA based on a multi-pronged approach comprising regional partnerships, south-south learning, and a virtual training program to build leadership capacity among managers of ECD programs. The authors start by explaining why, over the last twenty years, good quality ECD has increasingly been recognized as fundamental to reaching many societal goals, including improved education and health outcomes. This is followed by a summary of the network’s history, goals, and key results. The article concludes by discussing the challenges in meeting the needs and expectations of the Network’s many constituencies as well as the time and resources required to build and maintain an effective network.

The large number of partnership and knowledge-sharing activities organized within the framework of this network provides an excellent example of how productive this type of networks can be. The article also illustrates well the need for long-term commitment to establish and maintain effective networks and how a few very dedicated people can use the “convening power” of international agencies and well-known academic institutions to facilitate networking and partnerships to the benefit of education development in poor countries.

Azian Abdullah, Devadason Robert Peter, Khar Thoe Ng, and Wahyudi describe the work of the Regional Centre for Education in Science and Mathematics (RECSAM), located in Malaysia. This is one of more than a dozen regional centers established by the Southeast Asian Ministers of Education Organisation (SEAMEO) and located in various member countries to promote regional cooperation in a variety of fields. Since its inception in 1967, RECSAM’s main function has been to help member states enhance the quality of science and mathematics education in primary and secondary schools. This is done through knowledge-exchange and peer learning comprising training, research, and development activities for teachers, administrators, and other education professionals. The article describes the content of these activities as well as the challenges faced by the Centre in responding to the evolving and varied needs of the member countries. One key challenge is the ability to mobilize the resources required to deliver on the Centre’s

mandate as a *public good institution* charged with helping to build the foundation for developing the technically and scientifically trained human capital that is increasingly needed to support the fast-growing, increasingly knowledge-based economies of the SEAMEO countries. The success of RECSAM in this regard illustrates well the increasing importance of this type of regional cooperation, especially in a field so crucial to education quality and relevance at all levels of the education system.

Shortage of predictable and sustainable funding for regional and global public goods in the education sector is a recurrent theme in this special issue of the JICE. Many donor countries have tried various mechanisms to address this problem. One approach is to channel some of their ODA through special “Trust Funds” located in international agencies and earmarked for various “soft” investments at the national, regional and/or global level. The article by **Olav Seim** and **Birger Fredriksen** describes one such Fund – The Norwegian Education Trust Fund for Sub-Saharan Africa (NETF) – set up by Norway in 1998 and managed by the World Bank. Over its ten years of existence the NETF disbursed about US\$46 million to support analytical work, policy formulation, and sector program preparation at the country level, and a variety of peer learning and knowledge generation and exchange activities at the regional level. This article describes the rationale for establishing this Fund, what it financed and why, what it achieved, and what lessons can be drawn with respect to the use of this type of mechanism to provide targeted support of this type. The article concludes by calling on the international education aid community to urgently rethink how the institutions and networks designed to provide regional and global public goods in the education sector can be revitalized and strengthened in terms of governance, effectiveness, and funding.

The last article by **N. V. Varghese** turns to discussing effective use of aid in *higher education*. The high priority given by donors to such aid in the 1960s and 1970s – largely based on graduate training in donor countries – was followed by a period of declining support when attention shifted to the Education for All agenda in the 1990s. However, higher education is once again becoming a rising aid priority. This reflects the increased importance of support for skills development to help countries compete in the modern, increasingly knowledge-based global economy. However, the author notes that there is a need to rethink how such aid should be allocated and used to become more effective in achieving this objective. Currently, aid for higher education remains concentrated on a few countries with fairly developed higher education systems, or is spread thinly on many institutions in countries with less developed systems. The author argues that to become more effective, the aid should focus on developing and implementing *national policies and system-wide improvements* rather than on targeted interventions for selected faculties and institutes. Again, similar to the arguments made in many of the other articles in this special issue, to maximize the catalytic impact of any given level of aid, this is a call to rethink not only how aid for higher education is used *within* a given country but also how

such aid is distributed *among* countries.

In summary, this special issue of the JICE calls for enhancing the effectiveness of education aid by giving much more attention to ensuring that such aid is allocated strategically to maximize its catalytic impact on total resource use in the education sector. Progress in this area should be the next phase in the ongoing effort to enhance the effectiveness of education aid.

However, to achieve this will require both more proactive international efforts to clarify the scope for such allocative efficiency gains, and more effective global coordination to implement needed changes in aid allocation priorities. It is my hope that this special issue of the JICE can help stimulate discussions among the various stakeholders in the international education aid community on how progress can be achieved in both areas.

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Enhancing the Allocative Efficiency of Education Aid: A Review of Issues and Options

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Abstract

This article reviews issues and options for allocating education aid by sub-sector, purpose and country in ways likely to increase the impact of such aid on national and international development goals, including by mitigating the dependency risks in countries highly dependent on aid. The article focuses on Sub-Saharan African countries. To promote more strategic allocation and use of aid, the article calls for more effective global coordination to ensure that the sum of aid allocation decisions made by individual donors makes sense in the aggregate in terms of maximizing the impact of overall aid on education outcomes, nationally and globally. The article warns that the current neglect of allocative efficiency issues in general, and of the funding of regional and global public good functions in particular, undermines the overall effectiveness of education aid.

Introduction

During the last decade, much of the global debate on official development assistance (ODA) has focused on reversing the marked decline in overall ODA during the 1990s, especially for Sub-Saharan Africa (SSA), and on enhancing aid effectiveness. Work on defining the objectives in the latter area culminated in the 2005 “Paris Declaration” on aid effectiveness. The Declaration comprises more than fifty commitments with targets for 2010, largely designed to foster higher *technical efficiency* in aid delivery and use through “harmonizing” aid modalities, improving donor coordination, and fostering stronger ownership and better governance by recipient countries. Progress was assessed at the September 2008 “Third High-Level Forum on Aid Effectiveness” in Accra, Ghana, which concluded that the pace of progress was too slow (AAA 2008, paragraph 6).

The situation for *education aid* mirrors that of overall ODA in that the international debate focuses on advocacy for increasing the *volume* of such aid, especially to attain the Education for All (EFA) and Millennium Development Goals (MDGs). And most of the concerns regarding aid effectiveness focus on enhancing the *technical efficiency* of delivery and use of aid, *once decisions have been made on how to allocate the aid* by education subsector, purpose, or country. Much less attention is given to determining *what the allocative priorities should be* to maximize the catalytic impact of the aid on progress towards national and/or international development goals. And even less attention is given

to how different ways of using any given level of aid may mitigate *potential harmful aid dependency risks* arising from the unprecedented duration of high aid dependency in SSA. Even if aid is delivered and used efficiently, its effectiveness is reduced if the aid is not used where it can have the strongest catalytic impact, or if it is used in ways that creates harmful dependency risks. This applies to education aid as it does to the allocation of overall ODA.

This article explores the scope for enhancing the effectiveness of education aid within this more holistic framework. The purpose is *not* to discuss the difficult question of what an “appropriate level” of aid for education might be. Rather, the article calls for much more strategic allocation and use of *any given level of aid* to enhance its catalytic impact, including by mitigate potential harmful effects of prolonged high levels of aid dependency. The article is organized in two parts. The first explores ways in which aid can be more efficiently allocated to enhance its catalytic impact. The second part discusses aid dependency.

Enhancing the catalytic impact of aid through more efficient allocation

There are many reasons for the low attention paid to whether better targeting of aid on particular areas, purposes, or countries could increase aid effectiveness¹. First, the existing distribution of aid is the outcome of complex processes within individual donor countries and agencies as well as within recipient countries, each responding to many constituencies, including national parliaments, national and international civil society organizations, and international goals, such as the EFA goals and the MDGs. In addition, the distribution by country of bilateral aid often depends on historical ties. There is little concerted international effort to monitor the extent to which all of these processes add up to an “optimal” distribution of overall education aid to maximize its impact on, for example, agreed international development goals². At a time when severe budget constraints may lead to further stagnation or decline in aid, where aid fatigue is growing and where there are new demands for ODA arising from, e.g., climate change and food security needs, it is more urgent than ever to ensure that whatever aid is available is used as effectively as possibly.

Second, addressing allocative efficiency concerns raises a number of issues on which there is not always agreement, neither among policy makers in recipient and donor countries, nor among development specialists. For example:

¹ This article employs the terms “allocation” and “targeting” to denote earmarking of aid to given areas or purposes through, for example, targeted projects or budget support with performance indicators designed to increase public budget allocations for such areas or purposes.

² A notable exception is the annual UNESCO EFA Global Monitoring Reports. However, too little is done by the international education aid community to follow up on the report’s findings.

- i. Why give more attention to the *allocative efficiency* of aid?
- ii. What is the *degree of fungibility* between aid and domestic funding?
- iii. How should the rising importance of knowledge in the development process affect education aid allocation?
- iv. On which areas should aid be targeted to have the highest impact?
- v. Does aid targeting by donors conflict with the “Paris Declaration”?
- vi. Should the very unequal distribution of aid among countries be addressed?
- vii. Is there a need to redress the balance between financial and technical aid?
- viii. Should more aid be given to “regional and global public good functions”? If so, why is this not occurring?

Issues related to each of these questions will be highlighted below.

(i) Technical versus allocative efficiency of education aid

The term *technical efficiency* denotes the effectiveness by which a set of inputs is used to produce outputs. The concept does not take into account whether the *inputs* are those most likely to produce the desired *outputs*, or whether the outputs are the best that can be produced to reach certain overarching *outcomes*. Applying this concept to the efficiency of education aid delivery and use, donors have worked to deliver aid (the inputs) more efficiently by reducing aid fragmentation through greater coordination and harmonization, developing more efficient aid instruments, channeling more aid through national systems and ensuring greater aid predictability. They have also worked with aid recipient countries to improve the efficiency by which the aid that is provided for a *given purpose* has been used by strengthening country ownership, governance, and institutional capacity.

Applying the term *allocative efficiency* to education aid means asking whether the aid provided is used *where it can have the greatest catalytic impact in enhancing education outcomes*. To improve the technical efficiency of aid is important. However, by far the largest share of education expenditures in most countries is funded by domestic resources. Therefore, what can be gained from more efficient delivery and use of aid is limited if the aid substitutes for – rather than adds to – national funding, or is not *deployed strategically* where it can promote most effective use of *total domestic and external education funding* in reaching national and/or international education goals.

Reviewing aid allocation priorities is very important at the present time to ensure that they evolve to reflect emerging challenges resulting from the progress towards Universal Primary Education (UPE) since 2000 and the needs for skills development to compete in the increasingly knowledge-based global economy. This suggests shifts in aid priorities by:

- *Sub-sector*: Less “single-minded” focus on *access* to primary education and more on *equity* and *quality*, and less focus on *primary education* alone and more on the *other five EFA goals* and on *skills development* beyond basic education.
- *Type of aid*: To develop and implement policies to address such challenges require stronger and broader national capacity than what was needed to achieve the progress towards UPE in the last decade, which was largely achieved by constructing more classrooms, increasing class-size and recruiting more (often poorly trained) teachers.
- *Country*: From those “*on-track*” to reach EFA by 2015 to those “*off-track*”.

(ii) Fungibility and additionality

Presumed high degrees of *fungibility* between *aid* and *domestic funding* and high levels of *additionality* of aid to domestic funding are two important factors explaining the scant attention given to the allocative dimension of aid effectiveness within a given country. If the two sources of funding are fully fungible, they can be pooled in the national budget to support the Government’s program, which would reflect any special priorities donors may have for use of their aid. And the main reason for giving aid for a given purpose is to provide additional resources for that purpose. However, the interaction between domestic and external funding is quite complex, with respect both to the degree to which they are *fungible* and the extent to which aid results in *additional* resources.

First, there is not complete symmetry in the *fungibility between aid and domestic funding*; while aid may replace domestic funding for most types of expenditures, domestic funding will not necessarily replace aid, should aid not be available. This is particularly the case in countries that are highly aid dependent and where very tight budgets may not even be sufficient to fund teacher salaries. Under such circumstances, a government’s “political survival” may hinge on its ability to pay salaries and address other pressing short-term urgencies. Investments recognized from well-performing countries to have high longer-term impact – such as strengthening the capacity to conduct analytical work, formulate policies, and test innovations – will almost by necessity be given lower priority. Therefore, targeting aid on these types of investments may enhance effectiveness of total education expenditures.

Second, as regards *additionality*, the availability of aid for one education sub-sector may either cause recipient countries to shift public domestic funding to other sub-sectors³ or simply to use aid to substitute for domestic funding that would have been mobilized in the absence of aid. As discussed later, such substitution may create harmful long-term effects by creating aid dependency rather than sustainable increase in domestic education funding.

³ In this case, aid could still result in increased total education funding.

(iii) The growing role of knowledge in development⁴

The role played by *knowledge* in the development process has risen dramatically over the last couple of decades. This rise has been caused by many factors, including a greater understanding of the role knowledge plays in determining economic growth⁵, emergence of the “knowledge economy,” increased globalization, and the revolution in information technology. Furthermore, the very concept of “knowledge” has been extended beyond *technical* knowledge to include its *successful application* in different national political, economic, and cultural contexts. As a corollary, policies to narrow the “knowledge gap” are an essential part of any successful development strategy.

How should these developments impact aid priorities? The answer is complex⁶, country- and time-specific, and goes well beyond deciding on the priorities for education aid. Still, given the role of the education sector in creating, adapting, and transmitting knowledge, it is important to review the role of such aid in helping countries benefit from the knowledge revolution⁷. This includes finding the right balance between using aid to enhance the national capacity to, respectively, develop *new knowledge* and to *acquire and adapt existing knowledge* often developed abroad. The latter function is especially important in many low-income countries where (i) modern private industry is weak and plays a minor role in knowledge creation and diffusion, and (ii) the knowledge base is poor, and acquiring and adopting new knowledge from abroad is more important than in countries that are economically more advanced. Under such circumstances, aid can help develop the capacity of the public sector not only to create knowledge, but also to acquire, and adapt knowledge, as well as to improve the skill level of the labor force to absorb new knowledge, thereby helping countries “leapfrog” by drawing on other countries’ experiences.⁸

(iv) Areas of comparative advantage of aid

Views may differ on where education aid can have the strongest impact on education outcomes. However, experience suggests that aid may be particularly important in funding certain types of high-impact education investments which may not be adequately funded in the absence of aid. Examples include investments in support of:

- Capacity-building: Many studies have noted the slow progress in strengthening

⁴ Sections (iii) and (iv) draw on Fredriksen (2008).

⁵ Warsh (2006) discusses the gradual integration of knowledge in economic growth theory.

⁶ For a discussion, see World Bank (1999).

⁷ World Bank (2002) discusses the role of tertiary education in constructing knowledge societies. The article by Varghese in this publication discusses how aid for higher education can be made more effective.

⁸ World Bank (1999, pp. 130-143) emphasizes the key role of international agencies in this process. World Bank (2008a) evaluates the World Bank’s effort to use knowledge to improve development effectiveness.

the planning and implementation capacity in the education sector in low-income countries⁹. This is disappointing, considering the large amount of aid devoted to this purpose. Therefore, success will require a new approach, by *countries* as well as by *development agencies*. Rather than focusing on enhancing technical skills in the traditional manner (largely through training abroad, resident external technical assistants and equipment), the new approach must give more attention to (i) enhancing countries' *institutional and organizational capacity* to mobilize, utilize, and retain existing skills, (ii) better integrating work in the education sector with that of other sectors, and (iii) broadening the capacity-building work to cover areas such as enhancing equity, student performance and teacher accountability.

Success in implementing this type of reform will require *strong national political commitment and leadership*. A key reason for the slow progress is the *difficult political economy* of institutional reforms, especially in stagnant economies with weak governments. This constraint has been particularly acute in low-income SSA countries where GDP per capita in 2000 was about one-third lower than in 1970, and where today, despite the growth in the last decade, it is only back to its 1980 level. The economic growth experienced the last decade offers an environment more conducive to reform and aid should be used more proactively to help countries grasp this opportunity. Finally, as discussed later, more attention needs to be paid to ways of mitigating the potential negative impact of high aid dependency on the quality and capacity of national institutions.

- **Innovation**: Aid often plays a determining role in helping countries pilot and innovate to develop education policies and programs adapted to local conditions. For example, an evaluation of aid for basic education in four countries (Bolivia, Burkina, Uganda, and Zambia) concludes that, "...project support for basic education has played an important role in supporting innovation and the development of new practices" (Netherlands Ministry of Foreign Affairs, 2003, p. 96). Similarly, based on the review of case studies for 26 SSA countries, Marope and Sack (2007, p. 16) conclude that, "The case studies demonstrate that substantial technical and financial support from international development agencies has been crucial to the achievements reported."
- **Specific reforms**: Education aid has been used more deliberately in recent years to support reforms in areas critical to achieving EFA. One example is the

⁹ For example, UNESCO (2007, p. 27) concludes that: "... extraordinarily limited attention has been paid to strengthening national capacity", and "...countries need much stronger capacity to deal with the political economy of reforms and with technical constraints on implementation". World Bank (2005), OECD (2006), and De Grauwe (2009) provide in-depth reviews of issues and options in capacity-building.

development of tools to measure learning outcomes. This follows an increasing realization that universal completion of primary education cannot be achieved without much more effective interventions to improve learning outcomes. For example, an evaluation of the World Bank's support for primary education recommended that "Primary education efforts need to focus on improving learning outcomes, particularly among the poor and other disadvantaged children" (World Bank, 2006, p. xiii). To achieve this, donors have increased their support for analytical work on the determinants of learning outcomes covering the impact of traditional school inputs as well as of decentralized and school-based management. Much of this work is unlikely to have been achieved in the absence of targeted financial and technical aid.

- Poverty-focused programs: Most of those not enrolled in primary education are from poor families, live in rural areas, and are predominantly female, orphaned, or disabled. In countries struggling to reach EFA, these groups benefit much less from public education spending than do more well-off groups, urban residents, and children who are easier to reach, who are less likely to require costly, targeted programs, and who have a stronger "political" voice. Most donors' aid strategies strive to be poverty-focused by prioritizing poor and vulnerable groups. To ensure that this priority is reflected in the way their aid is allocated and used will be particularly important in the coming years where there may be strong "political economy" reasons to respond to demand pressure for post-basic education rather than to the needs of those who have not yet benefitted from basic education.
- Non-salary inputs: In very resource-constrained situations, a very high share of public education budgets is used for teacher salaries, leaving little for other pedagogical inputs. Aid has helped mitigate this bias by focusing on non-salary inputs, though the trend towards budget support is changing this focus. This can be addressed by ensuring that national budgets include specific budget lines for non-salary inputs and by monitoring that adequate provision for such inputs is made.
- Advocacy: Promotion of EFA, girls' education and ECD are good examples of the crucial role that aid has played in facilitating advocacy conducted by both national and international agencies¹⁰. Areas where advocacy has been less effective include the need for sharply increased support for literacy programs, especially for women.
- Cross fertilization: Innovation is often stimulated by learning from other countries

¹⁰ The article by Garcia and Pence in this publication gives an excellent example of this for ECD.

through various types of knowledge-exchange and peer learning. These types of activities are often more easily funded through aid than domestic budgets. Learning from others is crucial for a sector such as education; development of good education policies is hardly an exact science, and failed reforms often have major human, development, and cost implications. Therefore, while education policies must be firmly rooted in national values, economic conditions, and social context, they must also be informed by good practices from other countries. History is rich in examples of the importance of learning from other nations and cultures. For instance, the development of higher learning has been one of cross-fertilization: Arab-European in the 12-14th centuries; and European-Japanese¹¹ and European-US in the 19th century. More recently, countries such as Korea, Ireland, Singapore, Thailand, and Vietnam have used aid very strategically to develop their education systems¹².

The above discusses inputs and areas where aid may have comparative advantage. The “Paris Declaration” also calls for countries to provide clear views on donors’ comparative advantages in providing certain types of aid and on how to achieve donor complementarity at the country or sector level. Donors commit to making full use of their respective comparative advantages. While little that is concrete seems to be done to coordinate aid from this point of view, this does nonetheless recognize that the effectiveness of education aid can be enhanced by actively seeking out such advantages in order to enhance the quality of the aid provided and limit aid fragmentation.

(v) Aid targeting and country ownership

There is no contradiction between the call in the “Paris Declaration” to align aid with national strategies, institutions, and procedures, and the desire to use aid where it can have the highest catalytic impact. However, in practice, legitimate differences may arise between donors and recipient countries on where aid may have the highest impact, or on trade-offs between different objectives. For example, it may be more difficult politically for governments to resist social demand pressure for post-basic education than demands of marginalized out-of-school groups who have less political voice, but whose needs may be the top priority for many donors. Such differences may especially arise in countries where there is low government accountability to the population for how aid is used, while parliaments in donor countries often set priorities for the use of their aid. Also, it is not always easy to “harmonize” differences between donors regarding aid priorities and delivery approaches.

¹¹ Emi (1968) describes the high priority given by Japan during the Meiji era (starting in 1868) to acquiring foreign technical knowledge. The article by Yoshida in this publication provides another example.

¹² See Fredriksen and Tan (2008).

To promote effective aid coordination, the “Paris Declaration” calls for strong capacity in aid agencies as well as solid political leadership and capacity in aid recipient countries. As discussed later, this is essential also to protecting countries against potential harmful effects of high aid dependency. In the end, it is the responsibility of the recipient countries to decide whether or not aid target for special purposes is acceptable to them. To exercise this responsibility well requires strong institutional capacity.

(vi) Distribution of aid among countries

There are huge differences among countries in the level of education aid received. The AAA calls for donors to “...work to address the issue of countries that receive insufficient aid” (paragraph 17). In 2007, aid commitments to primary education per primary school-aged child averaged US\$14 for SSA¹³. Twelve countries received US\$5 or less per child, while seven received more than US\$50. This compares to US\$3 per child in East Asia and the Pacific, US\$4 in South Asia, and US\$5 in Latin America and the Caribbean. These differences are due to factors such as strong historical links between some recipient and donor countries, the difficulty of providing effective *development* aid in some conflict-affected countries, and last decade’s focus on performance-based aid to address low aid effectiveness in the 1990s. However, developments over the last decade warrant a change in strategy in favor of countries which are far away from reaching the 2015 EFA goals. Such a change would be likely to accelerate the progress towards the *global* EFA goals.

(vii) Balance between financial and technical aid¹⁴

Most low-income countries have four avenues for accessing ODA-funded technical support, all of which are increasingly constrained in their ability to provide such support:

- Technical support by aid agency staff: The increasing use of budget support and other multi-sectoral funding instruments in the education sector has led to a shift in the agency staff managing education aid programs from education specialists towards generalists and macro economists. This reflects the call of the “Paris Declaration” to channel more aid through national systems. It is also a result of the desire of some agencies to reduce administrative costs per dollar of aid provided. However, achieving such goals by reducing the quality of technical support accompanying the funding could be a flawed measure of efficiency: What is gained in reduced administrative costs and improved focus on macro and inter-sectoral issues could be more than lost due to less effective education aid. Low-income countries need to be able to draw on high quality education expertise from

¹³ Data from UNESCO (2010), pp. 438-445.

¹⁴ The terms “technical aid” and “technical support” are used interchangeably to denote aid in support of capacity-building activities such as analytical work, policy advice, knowledge exchange, peer learning through “south-south” cooperation, and work to develop national consensus on policies and strategies.

aid agencies *regardless of the funding instrument used*. This concern reflects the donors' commitment in the AAA to "...strengthen their own capacity and skills to be more responsive to developing countries' needs" (paragraph 14), a commitment on which there has been little systematic follow-up by the international aid community.

- Donor funding for technical support: Use of general budget support tends to reduce the availability of aid to fund technical support. In a context of severe budget constraints and many urgent demands, it has proven more difficult for education ministries to obtain financing for analytical work, knowledge sharing, and other types of technical support through the national budget processes than when such support is funded through targeted projects. Fast Track Initiative's Education Program Development Fund has provided support for *program development* work. However, countries also need easy access to technical support during *program implementation*.
- Buying technical support: The "technical assistance market" comprises a large number of suppliers ranging from individual consultants and consultancy companies to academic institutions. This market is very fragmented. Neither the providers nor the users have adequate information on what expertise is available to best address the problem at hand. Often, quality assurance is poor, and donor funding is tied to use of institutions in the donor country. To help countries "navigate" this market is another reason why aid agencies need to have strong technical expertise.
- Weak public good institutions reinforces the negative impact of the above three factors on the availability of high-quality technical support, see point (viii) below.

The volume of financial aid has increased in recent years while the capacity of agencies to provide high-quality and well coordinated technical support is declining. This happens at a time when low-income countries need better access to such support to develop and implement evidenced-based policies and programs in response to emerging challenges. This development deserves more attention by the international aid community.

(viii) Neglect of "regional and global public goods"¹⁵

Factors such as rapid globalization, greater "international openness", and the ICT revolution have greatly increased the scope for drawing positive "cross-border externalities" from national good practices experience and technical expertise – that is, to

¹⁵ This term is used to denote a wide range of knowledge-generation and dissemination activities as well as technical support and cooperation, facilitated by regional and global institutions and networks.

turn these into *global public goods*. But the ability of especially developing countries to benefit from this development is hampered by the fact that the capacity of agencies and networks established to perform this type of public good functions in the education sector is generally quite weak. Therefore, an important element of a new donor strategy for capacity-building should be to strengthen the international community's ability to produce more and better quality public goods in the education sector.

No data are available on the share of education aid used to support public good functions. However, as an illustration, in 2008 and 2009, the annual budget of the leading technical agency in the education sector, UNESCO, was only US\$54 million for education (17% of its total budget including support for its affiliated education institutes) of which only US\$16.5 millions was allocated to operational activities. This compares to a total commitment of country-specific education aid of US\$12 billion in 2007. While public good activities are supported in many ways other than through UNESCO, it is clear that the share of education aid allocated to such activities is very low. This is reinforced by the fact that education attracts much less funding from foundations and other private sources for public good activities than e.g., the health sector. Thus, even a marginal shift of total education aid to public good functions could have a major impact, including by enhancing the *effectiveness of country-specific education aid* by harnessing the synergy between the two types of aid.

The “classic” factors causing underfunding of public goods produced and consumed within a given nation are even more severe when it comes to funding *regional and global public goods*¹⁶. In addition, funding is hampered by the complexity of measuring the impact of such goods. Therefore, since donors tend to “treasure what they can measure,” it is easier to fund, for example, school construction than knowledge-exchange or institution-building, which, at best, will only show results in the long term. In addition, as discussed in the article by Burnett in this publication, the slow progress in reforming UNESCO has hampered provision of the global public goods that that agency was designed to provide.

Various mechanisms are used to address this funding issue including: direct funding of regional institutions by member states; a combination of funding by member states, country hosting a global good institution and business revenue-generation; ODA grants; and private foundations. Some of these approaches are illustrated by articles in this publication¹⁷. One common approach used by donors trying to overcome some of these problems is to establish special “Trust Funds” located in international agencies and earmarked for funding certain types of public good activities, often through global programs. However, while very useful, so far this is at best a partial solution. Access to

¹⁶ For an overview of these issues, see Sagasti and Bezanson (2001) and Amoako (2008).

¹⁷ Confer the articles on the Norwegian Education Trust Fund, ECD and RECSAM.

some of these funds for low-income countries can be quite difficult and high in transaction costs. With the exception of the multi-donor fund established within the framework of the “Fast Track Initiative”, there is also little coordination among donors in the establishment and use of such funds.

In short, the weakness of global public good functions in the education sector should be dealt with much more urgently and purposefully by the international aid community than what is the case today. This is an area to which *new donors entering the education sector should consider giving priority*. Even small contributions in support of regional public good functions could make a major difference. But, as noted in Burnett’s article on UNESCO, more than money is required: In many cases, funding needs to be coupled with serious efforts to revitalize institutions and networks designed to provide public goods.

Mitigating dependency risks through more efficient aid allocation

The general aid literature discusses many potential negative impacts of aid dependency¹⁸. Such concerns are particularly relevant for many SSA countries – and for the education sector – given the unprecedentedly long duration of their high aid dependency, including the high share of aid in public education budgets. Still, the international debate on education aid pays little attention to how possible harmful dependency effects might be mitigated through alternative use of such aid.

This article *does not* address the difficult question of the level beyond which education aid may become “too risky”. Clearly, this will depend on country conditions¹⁹. Rather, the article argues that, *for any given level of aid*, more attention should be given by both donors and recipient countries to how this aid can be better used to enhance its impact, *including by mitigating potential aid dependency risks*. The importance of doing so increases by increasing reliance on aid to fund education. To this end, the below discussion starts by highlighting the level of aid dependency in SSA as a background for discussing three sets of aid dependency risks in the education sector:

- Aid may substitute for – rather than add to – domestic public education funding.
- High aid volatility may interrupt education delivery, complicate long-term policy-making and planning, and create political risks.
- High aid dependency may weaken national institutions.

¹⁸ For a summary of the literature, see Moss, Pettersson, and van de Walle (2006).

¹⁹ For example, “The Government of India refused the offer of substantial amount of aid for primary education until 1993 because of concerns that it would lose sovereignty over policy decisions. Even after that, aid was less than 2% of total expenditures on primary education,” UNESCO (2006), p. 98.

(i) Unprecedented long duration of high aid dependency

The degree of aid dependency in many SSA countries is unprecedented, both in terms of level of aid and length of high dependency. As regards aid levels, in 2008, net total ODA per capita (all sectors) was US\$49 in SSA, US\$16 in Latin America and the Caribbean, US\$8 in South Asia, and US\$5 in East Asia and the Pacific. Aid exceeded 10% of GDP in 21 SSA countries and 20% in seven of these countries²⁰. Aid exceeded 10% of GDP in only *one* country outside SSA (Afghanistan), and only in five other countries did aid exceed 5% (Cambodia, Georgia, Lao, Nepal, and Timor-Leste). Even more striking is the fact that, in 2007, aid exceeded domestic-funded public budgets in 13 of the 38 SSA countries for which data are available, and the median ratio between aid and domestic resources was 60%²¹.

As regards the *length* of high dependency, Moss et al. (2006, p. 3) note that:

“Globally, there is a core set of roughly three dozen countries that have received a tenth of GNI or more in aid for at least the last two decades. This is a lengthy time period for receiving sizeable aid with few historical precedents. The large flow to Europe during the Marshall Plan lasted only for a few years and never exceeded 3 percent of GDP in any receiving country.... While substantial US support during the early Cold War to allies such as Korea and Taiwan tapered off within a decade, contemporary aid ratios in these three dozen countries have tended not to recede, but to grow larger over three decades”.

As regards *aid for education*, paucity of data makes it difficult to assess the share of public education budgets that is funded by aid. Estimates made by the author suggest that, in 2006, aid comprised about 25% of the public education budget in the median SSA country²². The variation around the median is huge; the ratio between aid and domestic funding ranged from below 5% in eight countries to above 50% in nine countries.

Over the last decade, many studies have argued that a substantial increase in education aid is crucial to reaching the EFA goals. For example, UNESCO (2010, p. 130) concludes that, on average SSA would need US\$10.6 billion *annually* for *basic* education alone between 2008 and 2015. This represents about 66% of the estimated total aid needed for all low-income countries for basic education, and it is more than six times the total aid commitment for basic education in 2007. Clearly, an increase of this magnitude would represent a hugely increased aid dependency for years well beyond 2015. Similar to other estimates of this type, the study does not discuss how the increase in aid might affect aid

²⁰ Berg (2000) suggests that beyond 5% of GDP, aid starts to have negative effects on local institutions.

²¹ Data sources: World Bank (2010a), Table 12.1, and World Bank (2010b), Table 6.16.

²² This is the median for 40 SSA countries, based on GNI data from World Bank (2008b), and data on education aid and on education expenditures as share of GNI from UNESCO (2008).

dependency in the education sector, what risks it might present, and how alternative uses of the increased aid might help mitigate such risks.

(ii) Aid substitution versus additionality

The overarching purpose of aid to any sector is to *add* to domestic resources, thereby helping countries grow out of aid dependency. But if aid instead ends up *substituting* for domestic resources, aid risks creating dependency without sustainably increasing a country's resource base. For example, Moyo (2009) argues that the relatively high level of aid to Africa over several decades has negatively impacted the countries' efforts to mobilize sustainable domestic funding for development.

As regards education, there is little evidence on the extent to which aid replaces domestic public funding. But whatever the level of additionality might be, there are still ways to enhance it through better targeting of the aid. For example:

- Counter-cyclic funding: UNESCO (2010) estimates that the current economic downturn will cause a US\$4.6 billion loss in SSA domestic education budgets annually in 2009 and 2010. This exceeds the total amount of education aid to SSA in 2007 (US\$ 3.6 billion). In past downturns, education aid has declined as well. If this were to happen this time, it would reinforce the negative impact of the crisis on domestic funding. Together, these two factors could cause a sharp reduction in education funding, which could jeopardize the education gains of the last decade. While substituting domestic funding with aid is a risky long-term strategy, using aid to replace a cyclical decline in domestic funding may be a sound *short-term strategy* to protect past gains, including those resulting from past aid. And given the difficulty in reverting education declines, counter-cyclic funding may be more important for education than for other sectors.
- Underfunded inputs and areas: As noted earlier, strategic use of aid for inputs where aid has comparative advantage, and/or in support of severely underfunded high-priority programs is likely to result in additional funding for these inputs and areas.
- "Donor orphan countries": More aid for countries which are far from reaching the EFA goals but receive little aid may help accelerate the global progress towards EFA.
- Public good functions: As already noted, increased support for such functions is likely to enhance aid effectiveness and thus help mitigate dependency risks.

(iii) Aid volatility and predictability

In the “Paris Declaration”, donors have committed to reducing risks caused by high aid volatility and low predictability. Such risks are particularly serious in the education sector because high aid dependency means that timely payment of teacher salaries depends on timely delivery of aid. An abrupt interruption of aid could cause teacher strikes, which could seriously impact education delivery²³ and even social stability. Still, many factors make it difficult to ensure aid predictability. For example:

- Changing context: Unexpected developments in both donor and recipient countries may affect donors’ ability to deliver on their commitments. For example, the current budget crisis has affected aid budgets. There may also be reallocation of aid in favor of emerging priorities, such as climate change and food insecurity. Also, it has proven difficult to ensure predictable support for highly aid-dependent countries with fragile political, security, and governance conditions, as exemplified by recent cuts in aid to e.g., Guinea, Guinea Bissau, Madagascar, and Niger.
- Uncoordinated withdrawal or entry to a country or sector by donors affects the predictability of aid flows. In particular, the pressure on post-primary education could result in donors reducing support for basic education in an uncoordinated manner. This may already be happening. While overall aid commitments for education in SSA declined by 13% between 2006 and 2007, the decline for basic education was 24%, accounting for the total decline (UNESCO 2010, p. 442). It is difficult to determine whether this change is “justified” since there is no systematic international coordinated assessment of aid priorities, globally or in individual countries. However, *in terms of risk*, it means that the countries affected need to mobilize much more domestic resources for primary school teacher salaries. This may be difficult in countries that are both highly aid dependent and facing an economic crisis. Similarly, new donors are entering the field (see King’s article on China). This is very encouraging. However, recipient countries need to ensure that their entry is coordinated with support received from other partners.
- Comparative advantage of donors: As already noted, in the “Paris Declaration”, recipient countries and donors commit to seek division of labor among donors and to “make full use of their respective comparative advantage at sector or country level...” (paragraphs 33-35). If donors were to focus their limited technical capacity on areas and countries where they have comparative advantage, this could improve aid predictability by promoting stronger and more stable

²³ During the last two decades, due to long-term deterioration in teachers’ conditions, strikes have seriously disrupted education delivery in many SSA countries, even causing cancellation of whole school years.

partnerships. It would also limit aid fragmentation and reduce transaction costs.

- Strategic use of “volatile” aid: Certain uses of aid are potentially more risky than others in case aid is cut. For example, to stop or delay investments may be less risky than to not pay teachers. Also, to fund adult literacy and “second chance education” programs is more sustainable in the long term than to fund regular teacher salaries. If successful, the need for such programs will gradually decline, while the need to fund primary school teachers is permanent. Moreover, literacy programs are often conducted by contract teachers rather than by civil service teachers.

(iv) Impact of high aid dependency on institution building

Capacity-building has been a central focus of ODA, including in the education sector. However, as discussed above, success has been elusive, in part because the strategy employed does not respond well to current needs. In addition, there are many reasons why high aid dependency *in and of itself* may reduce the effectiveness of aid in building capacity. Moss et al. (2006) reviews a number of such reasons, many of which also apply to the education sector. For example, high aid dependency may weaken national institutions by:

- Distorting the budget processes and delaying structural change: As discussed above, the volatility of aid makes long-term planning difficult. Beyond that, the possibility of mobilizing aid to cover budget deficits causes a “soft budget constraint” which may result in postponement of difficult but inevitable budget trade-offs and structural changes. As a result, a high level of aid risks replacing taxation and creating disincentives that, in the long term, hamper the development of the institutional capacity needed to sustainably generate the domestic revenues that will allow a country to grow out of aid dependency.
- Switching political accountability and legitimacy from citizens to donors and lessening Governments’ ownership of the development agenda: This is another potential serious negative impact of high aid dependency on national institutions. If donors provide a large share of governments’ budgets, aid may undercut the main principles on which the “Paris Declaration” is based, i.e., fostering ownership, accountability, and participation.
- Turning bureaucrats’ attention to donors rather than to core development functions: This is a widespread concern. The complaints range from the time senior officials spend on meeting the various reporting requirements of aid agencies, to the incentives created by aid for rent-seeking behavior, spanning from minor distractions, such as attending workshops to receive per diem, to outright

corruption.

While not specific to the education sector, the above factors apply to the education sector as well. At a time when strong advocacy for increased aid coexists with recognition of the ineffectiveness of past capacity-building strategies, the potential impact of increased aid dependency on the capacity of national institutions deserves much more attention. The “Paris Declaration” includes a number of measures that could address some of these concerns. However, as illustrated by the AAA, the progress towards the 2010 goals has been modest.

To conclude this section on aid dependency risks, countries that have grown out of aid dependency have had high quality political leadership, policies, and governance, resulting in strong economic growth, e.g., Botswana, Mauritius, Korea, Taiwan (China). This has facilitated strong growth in education funding. Similarly, recent history in Africa suggests that, in the end, a necessary condition for SSA countries to reduce their education aid dependency is to achieve *high and sustained economic growth*. For example, largely as a result of economic stagnation, public education budgets in SSA grew annually by only about 1% between 1980 and 1999. This compares to about 9% annually between 1999 and 2007, about two-third of which was explained by solid economic growth. Given that education expenditures already constitute about 20% of public budgets in SSA, and 4.5% of GDP, economic growth is likely to be an even more important factor than in the past decade in determining SSA countries’ ability to both reach EFA *and* respond to the pressure for post-primary education in a way that does not further increase their aid dependency.

Concluding remarks

This article has called for increased attention to more strategic allocation and use of education aid in order to enhance its catalytic impact, including by mitigation harmful effects of prolonged high levels of aid dependency. To achieve this aid, progress is required in two areas. First, more work is needed to clarify the scope for *enhancing the effectiveness of education aid through improved allocative efficiency*. At present, this aspect of aid effectiveness receives little attention. Second, to promote such work as well as to implement any resulting strategy to improve allocative efficiency, *more effective global coordination mechanisms need to be developed for education aid*.

Since the 2000 Dakar Education Forum, there has been much focus on the need for low-income countries to develop better quality sector plans, more evidenced-based decision-making processes, and stronger implementation capacity. It could be argued that the same degree of attention has not been paid to the potential for increasing the catalytic impact of education aid through better quality decision-making and follow-up on aid allocation and coordination matters *by donor countries and agencies*. To do so should be

the next phase in the ongoing struggle to enhance the effectiveness of education aid.

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Skills and Technological Development in the Early Stage of Industrialization – Implications from Japanese Experiences in the Meiji Era

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Abstract

Japan embarked on its major efforts to industrialize during the later part of the 19th century, the Meiji era. This article examines the process of acquiring and internalizing advanced technology and developing Japan's human resources during that period by applying a model developed by the author. This model analyzes the challenges developing countries currently face with respect to skills development: namely, bridging the three gaps of policy, relevance, and finance of publicly provided skills development. Via a case study of the iron and steel industry, the article describes: how the government made a strategic choice with respect to technology; how the government played the dual roles of direct management of the industry as well as stimulating the growth of private industry; the extent to which the government made conscious efforts to use the existing socio-economic system related to the industry; and how it used local resources without depending on foreign loans. The government initially depended on foreign experts, gradually replacing them with domestic experts who were initially trained abroad but later at home, followed by development of middle-level skilled workers. The article concludes that many of the factors that were key to the success of the countries that grew out of underdevelopment over the last half century were present in the policies and approaches adapted by Japan during the Meiji era.

Introduction

Most of the previous studies on Japanese experiences of industrialization were conducted with a view to find lessons that are directly applicable to developing countries today. This approach often falls short of providing relevant lessons because of differences in important contextual factors. To avoid this problem, this paper starts by examining key characteristics of challenges surrounding skills development of developing countries. Based on this, an analytical framework is constructed. The paper then reviews means and processes of acquiring the advanced technologies from the West and internalizing them, using as a case study the iron and steel industry in the Meiji Era. Using the analytical framework built based on the challenges of today's developing countries, Japanese experiences will be re-assessed and conclusions will be drawn, while recognizing important contextual differences.

Three Gaps of Developing Countries

This section presents the challenges in skills development that developing countries face today. Governments of such countries are more than ever eager to enhance levels of skills of their labor force. Both domestic and international factors are driving the countries toward skills development.

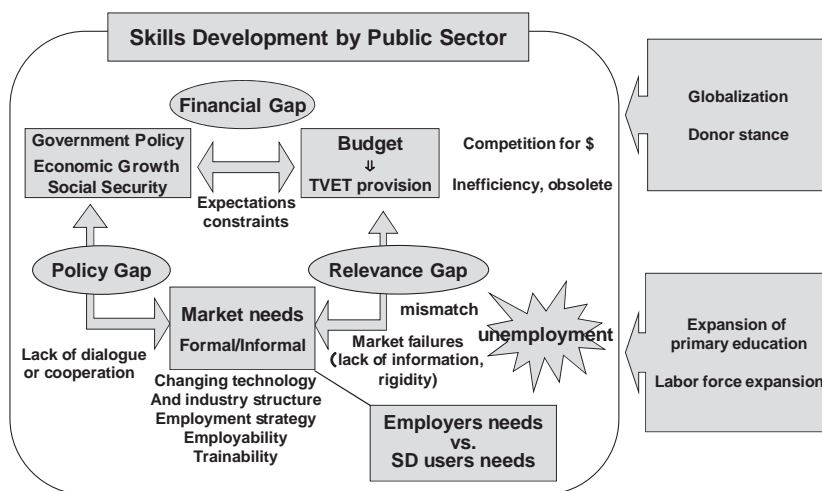
In coping with high expectations and pressures to develop the skills of their labor force, developing countries face several challenges. The labor force is expanding every year. In Sub-Saharan Africa, it has increased from 195 million in 1990 to 338 million in 2008, including those unemployed (World Bank databank). Other regions have also seen an increase. Past high fertility, educational expansion and increased participation of women in economic activities explain this trend, potentially a positive sign for further economic development. However, if the labor market fails to expand enough as to absorb net new entrants, or if skills of workers do not match needs of the industry, unemployment can rise. In the formal sector of low-income economies, absorptive capacity in the public sector is already saturated, and the job openings in the private sector is not increasing in pace with the growth of the labor force. Youth unemployment already poses serious concerns in many developing countries. Lack of reliable and timely information system concerning the labor market adds to the rigidity of the market. Losses of gains in skills development due to HIV/AIDS are also serious in many Sub-Saharan African countries. Another implication of the expanded labor force is the expansion of the informal sector on which I will touch upon later. Often, small firms are financially and technically not capable of providing in-firm skills development systematically in the way large-scale firms can do (Gill, et al., 2000).

On the supply side, providers, contents, and program durations of Technical and Vocational Education and Training (TVET) are all diverse. Looking only at the public sector, usually many bodies of different ministries (Education, Labor, Industry) and local governments are involved in regulation or in direct provision. Adding the presence of the private and informal sector, it is far from an easy task to just grasp the entire situations of TVET. The share of TVET in total secondary enrolment varies significantly especially at the upper secondary level, ranging from high countries of Argentine (90%) and Uzbekistan (81%) to low countries like Kenya (2%), India (2%), and Saudi Arabia (1%) (figures for 2008, UIS 2010). Other countries have shown a remarkable growth in secondary TVET enrolments – between 2000 and 2005, it increased by 33 times in Ethiopia, 8 times in Senegal, and 5 times in Ghana (World Bank databank). Variation of the level of TVET activities cannot always be associated with the levels of education expansion or economic growth. One needs to observe carefully to see what actually determines the nature of TVET in a particular country.

Public sector TVET typically faces three gaps. The first is a policy gap. As we have seen, the multiplicity of players make grasping the comprehensive picture of skills development programs provided by them difficult and the building of reliable information

system is lagging behind. Still, policy makers and curriculum developers seldom talk with the business community, specially the informal and small and medium size firms which usually represent the overwhelming majority of total employment. This results in policies that do not appropriately reflect the real situations of the labor market or the industry’s needs. Building trust between the government and the business community becomes even more difficult.

The second is a relevance gap. Contents of skills development do not meet labor market needs or the skills requirement of the industry. There are several aspects to this problem. Obsolete curriculum or a curriculum that, although well-intended, fails to be responsive to the reality on the ground; old equipment and technology that are no longer used in the workplace so the acquired skills are not useful. TVET providers usually intend to equip their trainees with knowledge and skills that are immediately applicable upon employment, but employers often favor human resources that are capable of responding flexibly to changing needs and new technology to those with very specialized skills in one specific area. Moreover, TVET programs are often not the first choice of many trainees who enroll because of lack of other options and who aspire to acquire higher skills that will lead to higher incomes; not only do the actual TVET programs not allow them to do so, but the labor market may prefer low-cost low skilled labor. Overall, the risk is fairly high that the intention, process and results of TVET are not reflecting the real needs on the ground. In addition, if most of the employment opportunities lie in the informal sector, in other words, if the conditions for the formal sector to generate sufficient job opportunities are not present, it becomes difficult to justify more investment in TVET that primarily aims at employment in the formal sector.



Source: Yoshida 2007

Figure 1. Three Gaps with the Public Sector Skills Development

The third is a financial gap. EFA requires stronger financial commitment of the government for the universalization and quality improvement of primary education, which comes at a time when pressure mounts to expand secondary and even tertiary education. Even if the government of developing countries has a strong interest in skills development, severe budgetary constraints make it very difficult to allocate more resources to TVET in the public or private sector. Typically, the cost of providing TVET at the secondary level is more than double of regular academic programs (Gill, et al., 2000). If the providers intend to provide skills training that are relevant, they need to invest continuously in equipment, as the needs of the labor market faces constant changes and progresses. This represents a heavy financial burden. Therefore, despite the increasing needs for skills development and the policy intention to strengthen the capacity to respond to this need, it is not only difficult financially to do so but simply expanding supply could be very risky, because the likelihood of not being able to respond effectively to labor market demands remains high. Introducing user fees, diversification of the sources of finance, relying more on the roles of the private sector, shifting the public sector's roles from direct provision to more of a facilitator and regulator, these are likely to be essential elements of any reform aiming at addressing current issues in the labor market for TVET skills. However, these types of comprehensive reforms are not always part of current reform packages.

In many cases, small and medium-scale firms need a set of public support measures to help correct market failures such as inaccessibility to credit/finance or to new technology. They also expect the labor market to function more effectively. If these elements are absent, investment in skills development will not bring much return. For expansion and strengthening of education and skills development to realize higher productivity, firms and workers and their actual roles need to be commensurate. This is a most difficult task for developing countries under current circumstances.

Acquisition of Western Modern Technology in Meiji Japan

Modernization, industrialization, and Westernization characterized Japan's development process during the Meiji era. These were perceived to be largely overlapping. On the political scene, a series of events followed after the Meiji Restoration that handed over the sovereign authority to the Emperor in 1868 (M1, the first year of the Meiji era): abolishment of fiefs replaced by prefectures in 1871, land and taxation reform in 1873, the promulgation of the Imperial Constitution in 1889, and the inauguration of the Imperial Parliament in 1890, thus forming the foundation of the modern democratic systems. Meanwhile the social class system was abolished in 1873. The Meiji government undertook the top-down industrialization policies to catch up with the Western powers, under the two slogans of "Enriching the Nation and Strengthen the Military (*Fukoku Kyohei*)" along with "Industrial Development (*Shokusan Kogyo*)".

Tohata raises four major roles of the public sector for the Meiji industrialization (Tohata 1964:41-59). First, provision of capital to finance industrialization which was

done by mobilizing savings into the capital market through encouraging the establishment of private banks and by issuing bonds and borrowing. Second, acquisition of modern technology initially by hiring experts. Third, dual roles of the government both as a direct implementer of industrialization and as a facilitator of private enterprises. Fourth, human resources development. He adds that trading functions of importing modern industrial equipment and exporting Japanese commodities to pay for imports were mostly handled by foreigners (90 percent of trade in 1887).

Our primary interest lies in how Japan acquired modern technology from the West and developed domestic skills. These were pursued by employing Western experts with imported Western plants and equipments, by sending students to study abroad who gradually replaced the employed Westerners, and by building education and training facilities, beginning with the higher level of education and later at lower levels.

Hiring Foreign Experts: Hiring Western experts was one of the major means of transplanting and acquiring their advanced technology in the state-run factories. The model was already implemented in the pre-Meiji era for the Yokosuka Shipyard built by the Tokugawa Shogunate, and the Kagoshima Spinning Mill by the Satsuma fief among other occasions during 1850s and 60s. All the plant and equipment were imported, and engineers and skilled workers for major functions were hired from abroad, de facto depending on them for the plant management (Uchida 1986:173). It is reported that over 500 foreign experts were hired by the government at the peak in 1875, from the UK, France, Germany and the US (Odaka 2007:4). They were mostly for the fields of engineering and academics (Figure 2). In the case of the Ministry of Industry (Kobusho) that took a central role in transplanting modern technology, foreign experts were employed extensively for railroads, mining, and mechanical engineering. Noteworthy is the case of the bureau of railroad that hired as many as 253 foreigners ranging from superintendent at the top to engineers, engine drivers, and repair shop mechanics (Nakaoka 2006:58-59). They were paid with extremely high salary, summing up to account for some 40 percent of the current budget of Kobusho during the 1870s, and over 10 percent in the case of the Ministry of Education (Monbusho). In some individual cases the salaries were much higher than that of the then prime minister (Emi 1962:795, Ohno 2006:62).

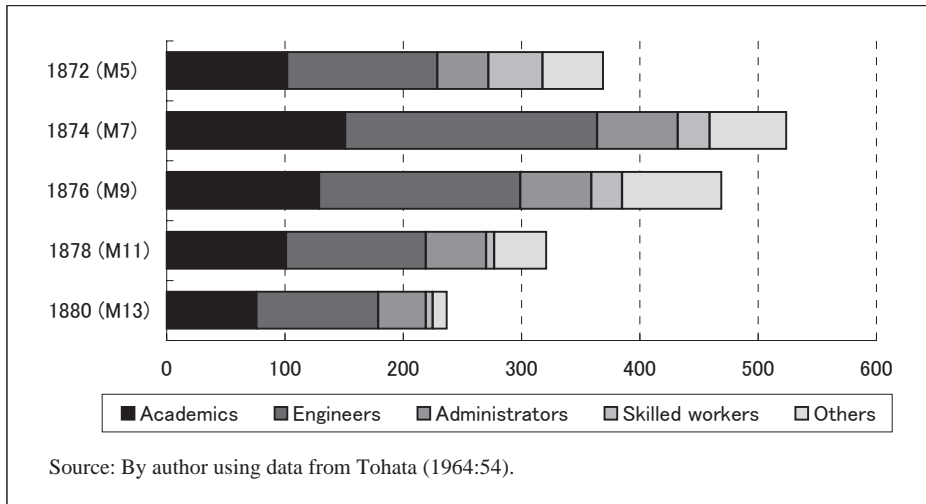


Figure 2. Composition of Foreigners Hired by the Government in the Early Meiji Period

In 1879 (M12), the government took a position of replacing the foreign experts with Japanese engineers, and the number of foreigners decreased. This was accelerated during the 1880s under the austere budget promoted by Finance Minister Matsukata. The government decided to privatize state-run enterprises, except for those that should remain in the public sector. Thus, 14 public enterprises which had served as models for nurturing private enterprises were privatized to start with (Nakaoka 2006:72, Uchida 1986:190). After the privatization, the remaining foreigners and absorbed modern technologies were transferred to the private sector. The trend of reducing foreign experts was reversed again in the face of industrial boom later in the Meiji period.

Study Abroad: In the end of Edo period, the Shogunate government and powerful fiefs were sending promising youth to advanced countries in order to acquire modern technologies and Western knowledge. While their main purpose focused on the naval enforcement, they studied mechanical engineering, shipbuilding, steam engine among others, and became central promoters as policy planners or practical leaders during the Meiji era (Uchida 1986:171-2).

During the first 5 years of the Meiji period, 500 students went to study in the US alone. As of 1873, 250 government-sponsored students and 123 self-financed students were studying abroad. In 1875 (M8), Monbusho streamlined and strengthened the selection control of the outgoing students, sending 11 and 10 students in 1875 and 1876 respectively. Thereafter, the number of students sent by Monbusho stayed at less than 10 annually until 1894, but afterwards increased to an average of above 30 per year for the rest of Meiji period, totaling 661. The students were mainly sent to the US, the UK, France and Germany in areas of laws, economics, physics, chemistry and engineering

(Monbusho 1981, Table 30). It is certainly probable that a much larger number of youth went abroad when privately-funded students are included.

Human Resources Development in Engineering: In 1870 (M3) Kobusho (Ministry of Industry) was established to take charge of promoting industrialization. Kobusho opened a school of engineering called Kogakuryo in 1871 which was upgraded two years later into the College of Engineering (Kobu Daigakko) for pre-service training of senior engineers for the public sector. A Scottish engineer, Henry Dyer, was invited as a founding principal who served during the period 1873-82. The college comprised preparatory general education, specialized courses, followed by field-based practical courses each lasting two years. Eight departments were opened for civil works, machinery, architecture, telegraphic communication, chemistry, metallurgy, mining and shipbuilding. A half of the last two years was dedicated to field practices (Uchida 1986: 174, 187). Eleven of the first batch of graduates continued to study in the UK, and returned to replace the foreign experts being employed by the government. When Kobusho was abolished in 1885, the College was transferred to Monbusho, and formed the engineering department of the Imperial University after being merged with the polytechnic department of Tokyo University. With this reorganization, it became more theory oriented with less emphasis on practice (Nakaoka 2006:443). The College produced over 200 graduates in 10 years who were conferred a high status as engineering technologist and formed a prestigious profession, enhancing the image of engineers (Iwauchi 1989:7). They were recruited as replacements of the expatriates and many of them were transferred to the private sector when the state-run factories were privatized.

Similar training schools were established for shipbuilding, tele-communication, lighthouse and other specific fields. Graduates from the railroad engineering training school successfully constructed a new line of railroad by 1880 led by the returnees from overseas study, without support from foreign experts (Nakaoka 2006: 436).

As mentioned below, Monbusho gave priority to primary education as well as higher education. This left a gap in raising the middle-level workforce in the modern industry. Certain experimental efforts were made to develop technical education institutions at the secondary level in the early time of the Meiji period which were subsequently suspended. The exception was the Tokyo Craftsman School (Tokyo Shokko Gakkou) established in 1881. It comprised the four disciplines of machinery, applied science, dyeing and weaving, and pottery, and was expected to take on roles of training middle-level engineers for the modern industry and leaders to modernize the light industry. While most of the graduates from the College of Engineering took positions in the public sector, more than a half of the graduates from this school were employed in the private sector.

Because of insufficient supply of training facilities, technicians (Koshu) to support engineers were in short supply in the workplace. To fill this shortage, a technician school was established in 1888 with financial support from the private sector. It was not regarded as a formal technical school, but successfully produced human resources more quickly in

one and a half years to meet the industrial needs in the areas of civil engineering, machinery, electrical engineering, architecture, ship-building, metallurgy, mining and manufacturing chemistry (Amano 1997:155). Similar undertakings were made by the private sector, such as the Iwakura Railroad School, the Mitsubishi Industrial School, the Kansai School of Commerce, and the Tokyo School of Commerce and Industry.

It was only during the latter half of the Meiji era, when the industrial education system was formally established. This was in ex-post response to the increased demand for skilled labor when the Japanese industry made a remarkable progress after the two wars (Sino-Japanese during 1894-95 and Russo-Japanese during 1904-05).

A School System by Ministry of Education (Monbusho): Monbusho was established in 1872 (M5), and the School Act (Gakusei) was proclaimed in 1873 which opened the educational opportunities for the entire nation. Primary education was particularly emphasized. At the start, the enrolment rate was rather low at 39.9% for boys and 15.1% for girls (and 28.1% on average) in 1873 when tuition fees were charged. Initially the period of more than 4 months per year and for the duration of 4 years was compulsory education, which was expanded to the full 4 years in 1900 when the fees were abolished, and in 1907 the compulsory education was extended to 6 years. The enrolment rate exceeded 90% by then for both boys and girls (Figure 3). During the Meiji period while the industrial modernization was pursued, human resources development became an urgent issue. But the Monbusho considered universalization of general primary education and training leaders at the university as their priority. Vocational or industrial education (the term used in Japan) was provided by related ministries and was put into the formal structure of education some decades later in the second half of the Meiji period.

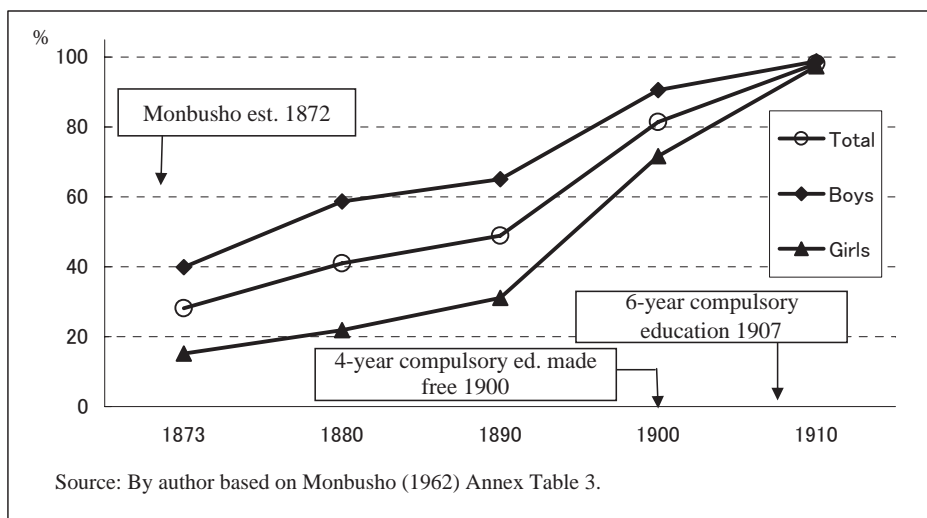


Figure 3. Enrolment Ratio of Japan's Compulsory Education

It was only in the 1890s under the committed Minister Inoue that Monbusho enacted the Supplementary Vocational School Act (1893) and the Apprenticeship School Act (1894). He also initiated the Law of the Central Financial Support for Vocational Education (1894). The Vocational School Act of 1899 and the Specialized School Act of 1903 together provided the platform for the formal industrial education at the secondary level and helped to sharply boost the number of supplementary technical schools and apprenticeship schools.

Apprenticeship schools: The apprenticeship schools targeted the primary school graduates aged 12 years or older and provided education and training to become skilled workers in 6 months to 4 years. The intention behind this was to transform the traditional inefficient apprenticeship by bringing it into the formal education system, thereby generating basic-level skilled workers who were highly needed by the industrialization. The establishment of this type of schools was eased by allowing them to be attached to primary schools, which helped the rapid growth in their number – from 4 in 1894 to more than one hundred in 1910. The apprenticeship schools offered woodworking, lacquer ware, and pottery courses for the traditional industry, and they helped modernize technologies used in these areas. The number of apprenticeship schools further increased during the economic expansion in the late Meiji period and thereafter in response to the modernization of industry under the import substitution and the heavy industrialization, covering the fields beyond the traditional industry. The apprenticeship school as a part of the school system was abolished in 1920, when some of them were promoted in status as technical schools while others were closed.

Supplementary Vocational Schools: The original intention of supplementary vocational schools was to assist the expansion of primary education by supplementing it and at the same time to prepare pupils for work by exposing them to introductory vocational education. When the enrolment rate of primary education rapidly rose from 60% in 1894 to 94% in 1904, the schools shifted their roles to providing part-time (evening or seasonal) training and education for youth at work and expanded nationwide. The number of supplementary technical schools increased from 9 in 1895 to 294 in 1909. Despite the intention of the financial support by the central government to promote industrial education, it was rather agricultural supplementary schools that mushroomed from 54 in 1896 to 3,785 in 1906.

In this way, the industrial education in the formal education system was consolidated at first at the primary and post-primary levels through the supplementary vocational schools and apprenticeship schools. As primary education universalized, the supplementary vocational schools were re-classified at the lower secondary level and, together with technical schools, commercial schools and other vocational schools, formed part of the system of secondary level industrial education.

In-firm training: In Japan, the firm-based training started in this period, largely due to the delay of the development of the industrial education system and to the peculiarity of the firms' needs for human resources. In the areas of heavy industry and mechanical engineering, in particular, traditional skills of the skilled workers became inadequate, and the apprenticeship training that prevailed needed to be strengthened by more organized education and training. The in-firm training in the first half of the Meiji era took both the formal and informal forms. This is exemplified by the Yokosuka Shipbuilder. Depending on the age at the time of recruitment, one would work as an apprentice for one to three years at the minimum wage while acquiring experience to become a skilled worker. In addition, the Shipbuilder had a more formal training facility which trained its employees into engineers and more skilled workers. Engineers were trained in a full-time course while the highly skilled workers were trained through a part-time course. The courses taught general subjects such as a foreign language, mathematics, geometry, physics, and chemistry, along with applied subjects such as sailboat building, ship-building, steam engine, etc. up to four years. The existence of such training opportunities had another role of retaining competent skilled workers who were highly mobile at that time and turn them into regular employees (Iwauchi 1989:39). During the second half of the Meiji period, more and more firms, but still mostly those of large scale, started to own their own training facilities.

Iron and Steel Industry in the Meiji Era.

This section reviews the process of acquiring modern industrial technology at the beginning of Japan's modernization, namely during the Meiji era (1868-1912), using as an example the case of the iron and steel industry. At that time, the iron-making technology of the advanced European nations was far ahead of Japan's traditional home-grown technology. The process followed will help understand how Japan managed to acquire and internalize within such a short period of time the latest technology that had developed in Europe during the span of some 400 years.

According to Nakaoka, the process of Japan's modernization of iron and steel-making can be divided it into three phases. The first phase is the shift from the traditional technology to the construction of reverberatory furnace and charcoal-fueled blast furnace in the 1850s. The second phase is the period of failure and success of establishing a coke-fired blast furnace at the Kamaishi Iron Mill during the 1880s. The third phase is symbolized by the state-run Yawata Steel Works that marks the establishment of an integrated system of pig iron and steel making process (Nakaoka 1986).

Preconditions: Prior to the arrival of the Western iron and steel making technology toward the end of the Edo period preceding Meiji, a traditional iron-making technology called *Tatara-fuki* was well established. It used a labor-efficient method of collecting iron sand, and balance-bellows replaced hand or foot-driven bellows as a wind blowing device.

This method was mainly practiced in the Chugoku region, a western part of Japan, that is endowed with quality iron sand with a low content of impurities.

In addition there was another iron-making method in the Nanbu fief, a part of the Tohoku (northeast) region using iron ore. The material in the region had a high iron content and produced superior reduced iron. Availability of a highly pure iron ore attracted the attention of Takato Oshima of the Nanbu fief who chose this area as a site for constructing a modern plant (Iida 1980:24).

First Phase: At the end of Edo period, the Tokugawa government had lost its controlling power, and influential fiefs such as Satsuma and Choshu had a strong voice in central government matters. Thus, each strong fief made innovative efforts. In the Saga fief, a reverberatory furnace was constructed in 1852 to found cannons for security purpose. It was only based on the Dutch textbook *The Casting Processes at the National Iron Cannon Foundry in Luik* written by Ulrich Huguenin (1826) without requiring any technical advice or support. The book was translated into Japanese in three different versions which were used to build the furnace of the same type in different parts of Japan. Founding cannons using the reverberatory furnace required a large quantity of pig iron of uniform quality. The existing traditional method of the *Tatara-fuki* furnace was not able to meet this demand. Oshima, who had joined the translation of Huguenin's textbook and had learned the modern technology, directed his attention to the local technology of smelting iron ore, and built a charcoal fired blast furnace in Kamaishi of the Nanbu fief in 1857. By the beginning of the Meiji era, 10 blast furnaces were built in total in the Kamaishi area, producing 3000 tons of pig iron per year which was used for casting coins as well as agricultural and daily tools.

Nakaoka points out that several pre-conditions were present in the Kamaishi area for absorbing advanced technology: the existence of an iron-making method of European origin using charcoal as a reducing agent; a large-scale privately managed smelting plant using iron employing over 1000 workers; availability of waterwheel-powered wind blower, and skills for furnace building and for producing fireproof brick (Nakaoka 1986:23-24).

Second Phase: After the Meiji Restoration, as one of a series of programs launched by the government under Shokusan Kogyo, the Industrial Development Policy, it was decided to build a massive scale integrated iron mill in Kamaishi. Oshima, who had joined and returned from a high-level Iwakura ambassadorial mission to the U.S. and Europe, was called upon to participate in this project. He proposed to build five blast furnaces each with a daily 5-ton capacity and horse-powered transportation of iron ore, in order to keep costs low and enhance the sustainability of operations. But the government adopted a plan advocated by a government-employed German engineer, Louis Bianchie, to build two blast furnaces with a daily capacity of 25 ton each, employing steam engine-powered transportation, including a converter plant to produce wrought iron, and a rolling mill.

Furnaces, railway and other necessary equipment were all imported from the UK. The mill started its operation in 1880, but had to stop after three months, and after 200 days of post-repair operation it was suspended again, and finally closed down in 1883. Shortage of charcoal as a reducer, excess capacity, and high costs of labor and transportation combined to make the mill unable to compete with imported steel (Iida 1980: 41-42, Nakaoka 1986: 26, Okada 1977). The government at that time was under severe financial stress and was unable to run further losses.

After the closure of the Kamaishi Iron Mill as a public enterprise, it was sold to Chobe Tanaka, a private entrepreneur. Tanaka followed the Oshima plan by re-starting with manageable smaller scale blast furnaces, and gradually expanded as workers developed operational skills. When the quality of pig iron thus produced was tested and proven to be competitive enough against the world –renowned brand Gregoreni pig iron from Italy, a stable sales route was opened with Osaka Arsenal, allowing to re-build operating capital. This was followed by a successful operation of the once abandoned large blast furnaces in 1895, after modifications of the design and improving charcoal efficiency and using coke obtained from local coal in Yubari, Hokkaido. The work was lead by Kageyoshi Noro, a leading domestic iron metallurgist who had studied theories and practices at London University and Freiberg University of Mining. This demonstrates the importance of the existence of engineering leaders who could critically assess the Western technology and adopt it to domestic conditions with good appreciation of the quality of local materials. The cost of producing pig iron at the Tanaka Iron Works was lower than that of the Yawata state-run steel mills. By this time, production of pig iron by blast furnaces had overtaken the traditional Tatara method, and the total production started to accelerate (Iida 1980:46-47).

Table 1. Pig Iron Production in Meiji Japan (ton)

	Tatara-fuki	Blast furnace	Total	Import
1874 (M7)	2,847	0	2,847	1,296
1882 (M15)	5,532	3,543	9,075	5,373
1887 (M20)	11,500	1,492	12,992	6,535
1894 (M27)	9,273	12,735	22,008	36,649
1902 (M35)	8,879	36,987	45,866	29,346

Source: Ohashi 1975:282, modified and corrected by author

The experience shows that the acquisition of external technology has two aspects – the *engineering capability* to design, build and operate equipment and plant, and the *social technological basis* that enables the society to absorb this technology, that is, the level of existing local technology, social relationship with the technology and related systems. Nakaoka argues that a leap may be possible in the narrowly defined aspect of technology in a small scale among a small number of individuals, but success is subject to

the conditions of the social technological basis that influences the acceptability of the new technology. For the latter, a gradual change is possible but a huge jump is difficult (Nakaoka 1986:27).

Third Phase: State-Run Yawata Steel Works is a technological landmark in Japan that established an integrated system of producing pig iron and transforming it into steel. The integrated process begins with a blast furnace that melts and reduces iron ore into pig iron; then molten pig iron is oxidized and refined into molten steel in an open hearth, converter or electric furnace; and the steel ingot is rolled in a rolling mill into suitable shapes (Iida 1980:47-48).

The process resembled the Kamaishi case. Designed by F.W. Lührmann, a German blast furnace engineer, the whole plant including smelter, coke-fired blast furnace, a converter and open hearth furnaces, and a roller was imported from Germany, and some twenty German engineers and foremen were employed. Also, ten Japanese engineers were trained in Germany on the job in metallurgy, machinery and chemistry. German technology was preferred for its similarity of demand structure with that of Japan – smaller quantity with variety - rather than the mass production style found in the US. However, the quality of pig iron obtained from the first blast furnace in 1901 was inferior and coke efficiency was low, resulting in the suspension of the operation already in the subsequent year. Noro, who assumed the position of technical advisor, assessed the situations and attributed the failure to furnace design, low quality of coke, inappropriate blending of the charge, and poor knowledge of foreign engineers of Japanese raw materials. Subsequently, all the contracts with German experts except one were terminated, often prematurely before the operation was resumed in 1904. Continuous improvements were made thereafter with the blast furnace model and operational skills, resulting in significantly improved production efficiency. The steel produced by the plant accounted for over 80 percent of all the domestic production for the rest of Meiji era (Iida, *op. cit.*).

Labor force at the Yawata Steel Works was not skilled or experienced, mostly recruited among former farmers or workers at nearby coal mines (Iida 1981:21). It is understandable that smooth communication, building trust with foreign experts, and acquiring skills were not easy tasks for them. Human resources development within the industry was essential and the plant managers made efforts to upgrade skills of inexperienced workers and retaining the talented. Contracts with those with special skills were extended, long-term workers were commended, and provision of accommodation and welfare benefits were introduced. In addition, training facilities were established within the premise, both for the young workers and for retraining others. Here, an early model of life-time employment and company-based welfare system can be found.

Analysis

In the following, the Japanese experiences of the Meiji era industrialization will be

examined in the framework of Three Gap model to see how the modern technology was transferred to Japan and internalized and how human resources were developed.

Policy: At the highest level of policy, the Meiji government invigorated the whole nation in the name of Industrial Development. The message was simple and clear, unifying all efforts toward the goal. Fields of industrialization were those in which the technological gap with the West were the greatest, known to be strategically important in order to strengthen the economic and military power, and those that would stimulate the existing major local technologies and industries. The government pursued this objective by playing the dual roles of direct implementation and facilitation. First, it imported plant and equipment from the advanced Western countries that embodied the modern technology. In the transition from transplanting to acquisition of the technology, the players changed from hired foreign experts to Japanese who had studied abroad. This was followed by building training and education capacity, initially at the higher level within the line ministry and later by the university under the education system. Much later, the education sector responded to develop a middle level workforce by building technical and vocational schools after elementary education had been mostly universalized. In the meantime, the shortage of skilled workers had to be filled within the industry by upgrading the skills of inexperienced workers through on-the-job training. Privatization of the state-run enterprises helped ease the otherwise huge initial investment costs, and stimulated the existing domestic technology. It should be noted that traditional technology co-existed for a fairly long time after the introduction of advanced technology, providing large employment opportunities. This is not to say that the whole sequence of actions was planned ahead; the bureaucracy was not necessarily staffed with experienced civil servants.

Relevance: According to Odaka, successful technological transfer requires a conducive socio-economic environment, an adequate technological level of the local economy, and a good match between the training provided and the needs of the recipients. The history of failures and successes of modernizing the iron and steel industry illustrates well this proposition. A premature and comprehensive introduction of the vast plant in one shot resulted in failure, aided by the lack of knowledge about the quality of local materials. If the technological gap is too large, a small number of individuals may be able to absorb the advanced technology, but a systematic application into practice will be undermined by the shortage of human resources who can follow, operate and own it. Noro asserted when directing the Yawata Steel Works that priority emphasis of internalization should be given to the steel making process which was at the core of upgrading the existing technology, instead of trying to upgrade technologies concerning the vast whole system at once. He added that at the same time related domestic industry such as machinery and construction should be strengthened. The success required cooperation with existing similar blast furnace plants, as well as co-existence with traditional *tatara* iron-making community (Iida

1981: 3-4). He was aware that it takes time for the new technology to settle in, and of the critical role of the traditional sector in bridging the gap.

Before the school-based vocational education mushroomed toward the end of Meiji era, on-the-job training was a common opportunity to disseminate acquired knowledge and skills. Graduates from technical schools established by the ministries were promised jobs with the same ministry. The mismatch between the training and the labor market demand, or the problem of unemployment of graduates, did not occur during this phase of the Meiji era. Private and local initiatives to train workers were also effective for the same reason. By the time Monbusho established vocational schools which rapidly increased in the latter part of the Meiji era, skilled workers were clearly in short supply. Where the labor market is functioning well and sending clear signal of demand, providing relevant training is not a difficult task.

Finance: It is not straightforward to assess whether the measures taken were cost-effective to fulfill the policy objectives and, especially, the need for technology acquisition and human resources development. Industrialization had to be achieved at any cost, after over 200 years of the closed-door isolation policy. Without this motivation, it would have been difficult to justify spending such a huge portion of the budget on hiring foreign experts and on equally expensive study abroad (Figure 4). The *de facto* monopoly of external trade by foreigners might have contributed to the ignorance of international prices. Nevertheless, domestic finance alone enabled the pace and scope of industrialization of the Meiji era without having to depend on foreign loans. Land and taxation reform, establishment of over 150 private banks and other finance policy measures contributed to it, together with the existence of the commercial sector and the private financial and entrepreneurial powers that complemented the process.

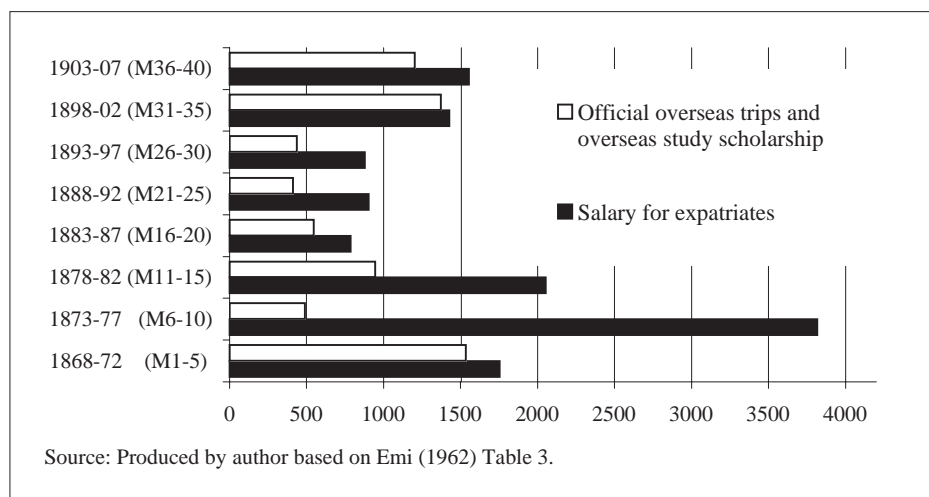


Figure 4. Public Spending on Studying Abroad and Foreign Experts in Meiji Era (Unit 1000 current Yen)

Concluding Note

The Meiji era was one of the most dynamic periods in all aspects of Japan's social, political and economic development. This article has analyzed the effectiveness of skills development in terms of how successfully advanced modern technology was acquired and human resources were developed as an essential element of self-reliant internalization of the technology. The meaning of massive use of foreign experts, replacing them with Japanese experts trained abroad, the roles played by the Ministry of Industry in promoting industrialization and human resources development, and the roles of the Ministry of Education and the private sector, both traditional and modern, cannot be explained by policy intention alone. Successes and failures have to be examined along with their causal and incidental factors including: strong and sustained government commitment and support; the government's roles as direct provider and regulator taking into account the stage of technological development, building domestic capacity to develop human resources at appropriate skills and knowledge levels, existence of and collaborative relationship with the private sector including the traditional sector, reasonable pace of acquisition and internalization, matching skills development with needs, cost-effectiveness and self-reliance in the process and finance.

Needless to say, however, the assessment made has to be interpreted with care, especially when it comes to what lessons can be drawn with respect to present-day developing countries. The pace of technological innovation, the product cycle of strategic output, international factor mobility, and the presence or absence of international aid together make up a very different environment for Meiji Japan as compared to that of current developing countries. Notwithstanding these differences, many of the factors that have been found to be key to the success of the countries which over the last half century have been able to grow out of underdevelopment were present in the policies and approaches adapted by Japan during the Meiji era.

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Borrowing from the World Bank for Education: Lessons from Korea and Mexico

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Abstract

By comparative static analyses, this paper tests the hypothesis that greater educational investment in Korea than in other developing countries led to the greater contribution to rapid economic growth in Korea during the 1960s-1990s. The empirical data do not support the hypothesis. No greater investment in education, including borrowings from the World Bank for education, was made in Korea than in other developing countries with the same level of per capita income. This paper therefore investigates whether the investment in education in Korea was more efficient than in other developing countries at the same level of development during the period observed. This investigation was made by comparing the characteristics of World Bank educational loans/credits for Korea and Mexico, respectively. The results do reveal significant differences between the two countries in several aspects and lend some lessons for both lenders and borrowers of educational development loans.

Key Words: official development assistance, investment in education, educational loans, economic growth, aid effectiveness, World Bank, Korea, Mexico

I. INTRODUCTION

1.1 Disparate Rates of Economic Growth

The Republic of Korea's economic growth experience during the 1960s-1990s was impressive. Robert Lucas, Jr., (1993) the Nobel Prize winner in economics, stated: "Never before have the lives of so many people undergone so rapid an improvement in one generation." The Korean economy grew 8.6% per year during the 1960s, 9.5% per year during the 1970s, and 9.6% per year during the 1980s. These growth rates compare favorably with other developing countries. For example, Mexico grew only 7.2% per year during the 1960s, 5.2% per year during the 1970s, and 1.2% per year during the 1980s (Jaspersen 1997).

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1.2 Disparate Degrees of Education's Contribution to Economic Growth

Studies show that Korea made special efforts to invest in people, and that investment in education made special contributions to the economic growth of Korea (Harbison and Myers 1964, Farrell 1974, McGinn et al.1980, Lee 1983, Barro 1991, Ito and Kruger 1995, Park 2000, Amsden 2002, McMahan 2002, Suh and Chen 2007, Eichengreen et al. 2009). Those studies, which applied the growth accounting technique of Denison (1967) and Schultz (1961), reveal that educational expenditures contributed to economic growth of Korea on average at 8.2%. Except the study done by K. S. Kim (1983), all studies indicate that the extent of the contribution made by education to GNP was greater than the proportion of educational expenditures in GNP (about 3% to 4 %) (Park 2000) (Table 1).

In particular, Park's study, which follows the Chavas and Cox (1992) method to overcome the shortcomings of the growth accounting technique, found that during the period 1969-1996 the internal rate of return of the educational loans/credits that the Korean government obtained from foreign aid agencies were as high as 5,115%. While the growth accounting technique assumes that educational investment affects the economic growth of the same year only, the cost-benefit approach of Park's study takes into account the long-term effects of educational investment on economic growth, which enable the internal growth of the economy, just as scientific research and development do (Griliches 1964, Lucas 1988, Romer, 1986, 1990).

Table 1. Contribution of Education to Economic Growth in Korea (%)

Researchers	Contribution (%)	Study period	Study Method
Bae, J.K. (1968)	12.6	1957-1960	Denison
Lee, Y.K (1971)	14.6	1962-1968	Schultz
Tolley (1973)	5.0	1962-63;1968-69	Denison
Bae, J.K. (1978)	11.7	1960-1974	Denison
Kim, Y.B et al (1980)	7.8	1960-74	Denison
Song, W.S. (1981)	3.5	1955-1979	Denison
Kim, K.S. (1983)	0.4	1963-1981	Denison
Kim, Y.C. et al(1983)	5.0	1963-1981	Denison
Lee, S.K. (1989)	13.5	1975-1987	Denison
Average	8.2		
Park, E.W. (2000)	5,115*	1969-1996	Chavas and Cox

*rate of return

Source: Park (2000)

McMahon's empirical study (2002) indicates that during the period 1965-1990 the investment in education, especially in secondary education, by Korea and other Asian countries (Thailand, Malaysia, Japan, Indonesia, The Philippines, India, Sri Lanka, Nepal, Singapore) made a greater contribution to per capita income growth than did educational investments made by Latin American countries (Table 2).

Table 2. Coefficients of Educational Investment in relation to per Capita Income Growth

Dependent variable: Per capita GDP Growth				
Independent variables*(only education variables are shown)	East Asian Countries (including Korea) (1960-1990)		Latin American Countries (including Mexico) (1970-1993)	
	Coefficient	(Standard Deviation)	Coefficient	(Standard deviation)
Primary Education	0.015	(0.886)	0.006	(0.96)
Secondary Education	3.205	(3.27)	-0.004	(-0.26)
Higher Education	-6.94	(-5.01)	0.058	(4.10)

*1960-65 in the case of East Asia; 1960 in the case of Latin America

Source: McMahon (2002)

Suh and Chen's study (2007) shows that the economic growth in Korea was much faster than in other developing countries and that the main factor responsible for the differing rates of growth was not the rapid increases in the labor and capital inputs, but the faster increases in total factor productivity and accumulation of knowledge in Korea (Figure 1). In 1962, per capita income in Korea was only \$87 (in 2000 constant prices); however, it was almost \$3,000 in Mexico. In 2005, although Korea's per capita income reached as high as \$14,000, Mexico's was only about \$6,000. Their study shows that two-thirds of the difference in economic growth can be attributable to the difference in total factor productivity and accumulation of knowledge, which are generally understood as the result of investment in education as well as research and development. Therefore, their findings can be interpreted that the faster economic growth in Korea can be attributable to investment in education.

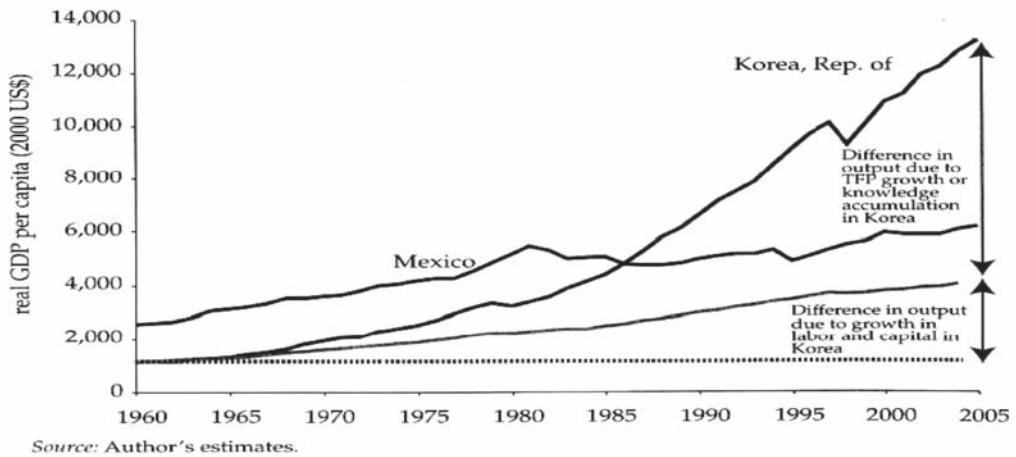


Figure 1. Factors Responsible for the Differing Economic Growth Paths

1.3 Plausible Hypotheses

If the faster economic growth in Korea can be explained by investment in education, then why was education's contribution greater in Korea than in other developing countries, especially Mexico? This paper tries to answer this question. A plausible hypothesis is that either the investment in education in Korea was much greater than in other developing countries like Mexico, or the quality of investment in education was superior to that in other countries.

This paper, first, tests the hypothesis that investment in education in Korea was much greater than in other developing countries. Secondly, the paper tries to find special features or the quality of educational investment in Korea, especially the World Bank loans and credits obtained by the government of Korea for the education and training sector during 1969-1994. Finally, the paper draws some lessons and policy implications that may be applicable to other developing countries that aspire to promote economic growth through investment in education.

II. Was Educational Investment in Korea Greater than in Other Countries?

2.1 Total Public Education Expenditures

To test the hypothesis that Korea made much greater investment in education than other developing countries, total public education expenditures are compared between Korea and comparable developing countries. Some 60 developing countries have been selected as a comparison group on the basis of their per capita income, which was less than \$300 in the 1960s. Korea's per capita income was \$87 in 1962 and never grew higher

than \$300 in the 1960s. Only in 1970, did its per capita income reach \$320. As such, the comparison group included developing countries whose per capita income was greater than that of Korea during the 1960s.

The result of a semi-scientific comparative static analysis shows that Korea's per capita investment in education was not really higher than the comparison group's. During the period 1965-2005, per capita public education expenditures were observed nine times for every five years. Only three times were per capita public education expenditures as a percentage of per capita GNP in Korea higher than in the comparison group (1970, 1985, and 2000). While per capita public education expenditures in Korea as a percentage of per capita GNP during the analysis period were 3.4% on average, it was 3.7% in the comparison group. Especially during the period 1965-1980, the percentage of the per capita public education expenditures in Korea was markedly lower than that in the comparison group. The result of the comparison stands robust even against the argument that education's contribution to economic growth is made over a long period of time with a significant time lag, since our comparison was made over a sufficiently long period of 40 years. Therefore, the hypothesis that Korea's fast economic growth owes to heavy investment in education in Korea cannot be sustained.

Since the comparison made above was based only on public education expenditures, someone may argue that private education expenditures should also be taken into account in the comparison. Especially in recent years aspirations for private education among Koreans are well-known internationally. However, the result of the above comparison would not change much even if private education expenditures were taken into account since private education expenditures during the period 1960s-1980s were negligible (Table 3).

Table 3. Private Education Expenditures as a Share of GNP in Korea (%)

Year	1977	1980	1982	1985	1990	1994	1998	2001
Private tutoring expenses/GNP	0.36	0.96	0.47	0.51	1.39	1.86	3.1	2.7

Source: Gong et al. (2001)

2.2 Total Foreign Assistance for Education

Another way of testing the hypothesis is to look into the distribution of total foreign assistance across different sectors including education. The rationale for looking into the distribution of total foreign assistance is that in many developing countries the most critical inputs for the long term development of the education sector, such as expansion of educational facilities, were financed with foreign assistance. Analysis was made on the proportion of the foreign assistance for the education sector in the total foreign assistance

for all sectors in Korea every year since the establishment of an independent government in 1948. This proportion was on average about 3.4% per year, which was much lower than the education sector's share of the total national budget (10-20% per year) over the period 1950s-1990s. Therefore, it cannot be argued that in the distribution of foreign assistance across sectors, the government of Korea placed a higher priority on the education sector than on other sectors. Moreover, total foreign assistance for the education sector accounted for an important part of total public education expenditures in Korea, ranging between 35-45% during the period 1980-85. However, in the 1990s, the amount of educational assistance was decreased from the 1980s level, and the relative importance of foreign assistance for the education sector declined even more sharply since domestic public education expenditures increased greatly.

2.3 World Bank Loans/Credits for Education

Still another way of testing the hypothesis is to focus on the World Bank loans and credits for the education sector vis-à-vis other sectors. The total foreign assistance for the education sector that the government of Korea received during the period 1950s-1990s amounted to \$1.252 billion, of which 92% or \$1.151 billion was educational loans/credits. Accordingly, the majority of the educational foreign assistance that Korea received was in the form of loans/credits (borrowings with/ without interest). Although the number of education sector projects financed by the World Bank accounted for only 55.4% of total education sector projects financed with external loans/credits, the amount of education sector loans/credits from the World Bank (\$708.3 million) accounted for 62% of total education sector loans/credits that the Korean government received (Table 4). Of the total project costs in the education sector, those projects costs financed partly with the World Bank loans/credits accounted for 83.5% or \$2.243 billion. The second largest supplier of the educational loans/credits following the World Bank was the OECF (Overseas Economic Cooperation Fund of Japan). However, its contributions to the amount of total educational loans/credits and total educational projects costs were only at 21.8% and 11.2%, respectively. Therefore, World Bank loans/credits played a predominant role in investment in the education sector in Korea.

Table 4. The Role of World Bank Loans/Credits for the Education Sector in Korea

(\$ million)	Loan/Credit Amount	Projects Cost	No. of Projects
Total Ed and Trg Loan/Credit (A)	1,151.1	2,685.6	22
Ed and Trg L/C from World Bank (B)	708.3	2242.8	12
Ed and Trg L/C from OECF (Japan) (C)	251.6	251.6	6
(B)/(A)	62%	83.5%	55.4%
(C)/(A)	21.8%	11.2%	27.3%

Source; World Bank website (www.worldbank.org); and Park (2000).

On the basis of the loans/credits data of the World Bank, a comparison was made between Korea and the comparison group regarding the amount of per capita investment in education and relative priority given to the education sector vis-à-vis all other sectors. The amount of per capita investment in education in terms of education sector loans and credits from the World Bank in Korea (\$4.83) was never higher than that in other comparable developing countries (\$5.94). Additionally, the proportion of per capita education sector loans/credits as a percentage of per capita loans/credits for all sectors in Korea (6.8%) was never higher than that in other comparable developing countries (10.2%).

2.4 Conclusions of the Comparisons

The conclusion that we can draw from the three tests conducted above is that during the period 1960s-1990s the investment in the education sector in Korea was never higher than that in other comparable developing countries.

Then, a question arises naturally: how can we reconcile the conclusion that we have obtained from the hypothesis tests conducted in this paper and the emphasis placed on education in the conventional literature. The inference we can make at this juncture is that the major factors responsible for the greater contribution of the education sector to the high economic growth rates in Korea may not be the quantitatively higher investment in education, but the investment strategy in the education sector, namely, the objectives, contents, and priorities of investment in the education sector. In other words, qualitatively the educational investment in Korea must have been consistent with the economic development strategies and policies and must have met the demand of the economic structure at different stages of development, and the contents and priorities of the investment in the education sector was conducive to economic growth. In the ensuing chapters, we will examine the special features of the World Bank loans/credits extended for the education sector in Korea, in particular their objectives, contents, and implementation processes, in order to find some distinctive features responsible for the higher contributions to the rapid economic growth in Korea and to draw some lessons applicable to other developing countries.

This search for the special features of educational investment in Korea will be made through a comparison between Korea and Mexico in their educational investment performance during the period 1960s-1990s. Mexico has been selected for this comparative analysis for simple reasons. Mexico's per capita income was much higher than Korea's in the 1960s. However, both countries became a member of OECD in the 1990s, which is rare among many developing countries. This historical event is indicative of the fact that both countries' growth performance was good. However, the economic growth performance of Korea was better. Therefore, a comparative analysis of the two countries may reveal special features of the educational investment in Korea. Since both countries are located in two different continents, any findings we may obtain through the

comparative analysis may also have the possibility of being generalized across regions.

III. Special Features of World Bank Education Loans/Credits for Korea

Indeed, World Bank loans/credits extended for the education sector in Korea were characterized by the focus and concentration in their objectives, financing sources and application of the funds; and the alignment with the economic development strategy in their contents and priorities. Also, both the World Bank staff and the Korean officials made effective use of the sector analysis practice, sector loans/credits approach, and monitoring and supervision system.

3.1 The Sustained Focus and Concentration of Educational Loans/Credits Projects

The Government of Korea contracted education loans/credits continuously during the period 1969-1999, and there was not a single year in which an education loan or credit was not implemented. Although implementation of an education loan/credit project required 5-7 years on average, the Government contracted another loan or credit as soon as a project was taking off the ground. As such, the number of education loans/credits accumulated during 1982-83 and 1992-95, and in some years about 7-8 education loan/credit projects were implemented simultaneously.

Although the government of Korea continuously contracted education loan/credit projects, it focused on three aspects, i.e., objectives, financing sources, and application of loans/credits. Firstly, the objectives and contents of the education loans/credits were consistently concentrated. A total of 12 education loans/credits contracted with the World Bank can be divided into two periods in terms of the objectives and contents. During the first period (1969-1977), the four World Bank loans/credits projects focused on the expansion and improvement of middle level occupational education and training programs to foster skilled workers and technicians. During the second period (1980- 1994), the eight World Bank education loan/credit projects concentrated on the expansion and improvement of tertiary level science and engineering education and training programs to foster professional scientists and engineers. Those projects were all simple and straight forward in their objectives and contents and therefore were easy to implement efficiently. They were not of the nature requiring collaboration or coordination with several other government agencies. The objectives and content of the projects were of the nature that could be carried out by the Ministry of Education or Labor alone. In many developing countries, the administrative systems and capacities are weak, and personnel less qualified, and therefore, those education projects that require extensive cooperation and coordination between government agencies are likely to experience delays in execution. The education projects in Korea were neither of the nature which is sensitive to the social and political situation or which require establishment of new institutions or complex policies. The loan/credit projects were repetitively designed simply for procurement of

equipment or facilities and training of instructors needed for education and training of skilled workers, technicians or professional scientists or engineers, and therefore could be mostly implemented during the planned implementation period.

Secondly, although the Government borrowed from some other sources during the period 1979-80, 1981-82, and 1986-88, it concentrated borrowing from the World Bank for a total of twelve education loan/credit projects over a period of 25 years (1969-1994). By borrowing repeatedly from the same financing source, the Government could accumulate knowledge and experience regarding the policies and procedural requirements of the lenders, save the costs of trials and errors unavoidable with diverse lending institutions, and take advantage of the same lenders' policies and systems during the preparation and implementation of the projects.

Thirdly, about 10% of the loan/credit proceeds were applied for training of instructors abroad and invitation of foreign experts, and the majority of the loan/credit proceeds were concentrated on procurement of equipment and facilities for workshops and laboratories. Since these goods and services were not available domestically, the loans/credits relieved the foreign exchange constraints which were prevalent in developing countries. Also, procurement of those goods and services was easy to implement, once the procurement procedures were agreed upon with the World Bank.

In sum, the objectives and contents of the loan/credit projects were so simple and straight forward that the implementation of the projects was relatively easy. Also, they were so repetitive that the risks of the project design and implementation were distributed over several projects, and the learning curve of the Korean government officials was moving fast upward.

In contrast with Korea's continued selectivity in the content, sources of education loans, and their applications, Mexico's borrowings for the education sector were characterized by a relatively late start in borrowing, diversification in the content of the projects, numerous usages of loan proceeds, multiple sources of financing, and several agencies for project preparation/execution. While Korea started borrowing from the World Bank for education in 1969, Mexico started only in 1981. Inasmuch as Mexico contracted six loans for technical education and training to foster skilled workers and technicians during the period 1981-1993, there was a continued concentration. However, during the second period 1994-1998, Mexico acquired six loans for diverse purposes: four loans for primary and basic education to foster functional citizens, one loan for strengthening social safety nets, and another loan for higher education financing. The loan proceeds were applied not only to workshops, equipment, and teacher training, but also to diverse usages: supplementary salaries as teacher incentives, teaching materials, students' materials, and complicated institutional and policy reform such as decentralization and skills certification systems, which did not require much foreign exchanges. In addition, Mexico always borrowed from two sources (typically the World Bank and Inter-American Development Bank (IDB)) and also designated two preparation/executing agencies for the same field of education. Consequently, the learning curve of the executing agencies was not moving

fast, and the implementation records were worse during the second period than in the first period with 2 years of implementation delays and more than 12% cost overruns even after the sharp reduction of the project contents and scopes.

3.2 Alignment between Education Loan/Credit Projects and Economic Development Strategies

The objectives and contents of the World Bank loans/credits were closely aligned with the educational and economic development strategies and policies. This is consistent with the Paris Declaration of 2005, which states that in order to improve aid effectiveness, recipient developing countries should first formulate national or economic development strategies, and the aid programs should be aligned with these development strategies or plans (OECD 2005).

3.2.1 The First Period (1969-1977)

The military government that took power in 1961 accorded top priority to economic development and implemented a series of five-year economic development plans. Before 1962, the Korean government had pursued economic development through import-substitution industrialization. However, the new government pursued export-oriented, labor-intensive, light industry-centered industrialization through the first and second five-year economic development plans (1962-1972).

Aligned with this development strategy, the educational policies also focused on the expansion of middle-level education and training programs to meet the projected demand for skilled workers and technicians needed for the implementation of the economic development plans. In the formal education system, expansion of the middle-level education was carried out through the formulation of the curriculum for technical high schools (1963), free admission to secondary schools (1968), equalization policies for secondary education (1974), five-year plan for promotion of science and technology (1967-1972), etc. . In the informal system, the expansion of the middle-level education policies were expressed through the promulgation of a vocational training law for the first time in the history of Korea (1967), opening of the air-correspondence high school (1974), installation of secondary schools annexed to the industrial establishments, and initiation of night programs at high schools (1976), etc. In particular, the secondary technical school system was expanded, attracting 48% of all high school students in 1975 (KEDI 2007). Also, the government judged that the demand for technical manpower could not be met by the expansion of the formal education system. It therefore expanded the non-formal occupational training system, subsidizing or obligating industrial establishments to conduct in-plant training, on the one hand, and operating public vocational and technical training institutes with the levies imposed on enterprises who failed to implement in-plant training programs on the other hand (Lee 2006).

Thanks to the economic and educational development policies, exports rose at 40% per year, and per capita income increased from \$87 to \$320 during the first and second five-year plan period (1962-1971). As the scale of the economy increased, so did the demand for importation of capital goods, and the deficit in the balance of payments also became chronic. Accordingly, development policies shifted to the heavy and chemical industry-centered development while maintaining the export-oriented development strategy during the third and fourth five-year development plans (1972-1981).

As the demand for skilled and technical workers were met through the expansionary education and training policies, the employment structure of the economy also changed. The share of the primary industry's employment decreased from 63% in 1962 to 50% in 1972. The share of secondary industry's employment increased from 7.5% to 14% during the same period. In particular, the employment share of heavy-chemical industry vs. light industry shifted from 33:67 in the 1960s to 39:61 in the 1970s to 49:51 in the 1980s (Kim 2000).

The World Bank loans/credits during the first period focused on the supply of skilled and technical workers. The first and second World Bank loan/credit (1969, 1973) aimed at fostering middle-level skilled and technical workers through the expansion of workshops and laboratories of both technical secondary schools and technical colleges, and the improvement of instructors' capability. Meanwhile, the third and fourth World Bank loans aimed at fostering skilled workers and instructors through provision of workshops and laboratories for public non-formal occupational training institutes. As such, the World Bank loans/credits were closely aligned with the government's economic development strategies.

3.2.2 The Second Period (1980-1994)

During the fifth and sixth five-year development plans period (1982-1991), turning sharply away from the expansionary development strategies of the past 20 years, the government of Korea took the strategy of economic stabilization, equilibrium, efficiency, and liberation. This drastic change in development strategy was caused by both domestic and external factors.

The seventh five-year plan was replaced by the New-Economy five-year plan by President Kim's civilian government, and the development strategy was based even more firmly on the market economy principles. The major policies included tight monetary and inflation control, rationalization of industrial structures, promotion of cutting-edge industries and investments in science and technology, and strengthening national welfare systems such as health insurance and pension systems. In particular, the government took cognizance of the difficulty of continuing with the export promotion on the basis of low wages and took advantage of the sunk-investment in heavy-chemical industries. The government tried to deepen the industrial structure by promoting high value-added, technology-intensive, knowledge and information-intensive, industries such as machinery, ship-building, automotive, electronics, and semiconductors manufacturing. Consequently,

the government focused on investment in science and technology, raising the level of investment in research and development to 2% -2.5% of GNP, and on investment in education, creating new education taxes.

In support of such new economic development strategy, the educational policies also shifted their focus to tertiary education, in particular on the intensification of education and research in science and engineering. These policies were expressed in the quantitative expansion of higher educational institutions including elimination of entrance examinations conducted by each college, expansion of the open university and upgrading of teacher training junior colleges to a college level (1981), establishment of secondary school teachers' college (1984), and qualitative improvements in science and engineering education at all levels of education (1983-1986). The government recognized that improvements at the tertiary level science and engineering education required strengthening of science education at secondary and basic education levels, and fostering creative and inquisitive thinking even at the preprimary education level. In the non-formal education fields, the government shifted emphasis from pre-service training of new entrants to the labor force to in-service or life-long training of already employed workers to improve their productivity and adjust their skills to the fast changing technology and structure of the knowledge-intensive industries (Occupational Training Basic Law 1987, Employment Insurance Law 1995).

The World Bank loans during the second period supported the government's new development strategy. Except the eighth and tenth loans (1992), which were an extension of the non-formal training program for skilled and technical workers of the first period, all six loans received during the second period focused on education and research in science and engineering in secondary and tertiary level educational and research institutions, and aimed at fostering high level professional scientific and engineering education and research. These loan projects were closely linked with the economic development strategy that aimed to restructure industry and educational policies that emphasized education and research in science and engineering at all levels, especially at the tertiary level.

The linkage between the World Bank loans/credits for the education sector and the Government's economic and educational development strategies can be summarized as follows (Table 5).

Table 5. Linkage between World Bank education loans and Government's Development Strategy in Korea (1940s-1990s)

	1945-1959	1960-1979	1980-1999
Economic Development Strategy	-Fostering <u>Economic Basis and Agricultural Economy</u> -Post- Korean War Reconstruction	-Labor Intensive Light Industries & Heavy-Chemical Industries - <u>Export-Oriented Development</u>	- <u>Technology Intensive Knowledge Economy</u> -Growth with <u>Stability</u> -Economic <u>Liberalization</u>

Major Educational Policies	<ul style="list-style-type: none"> -Establishment of Ideals, Systems, and Curricula -<u>Universal Primary Education</u> -Adults <u>Literacy</u> 	<ul style="list-style-type: none"> -<u>Universal Secondary Education</u> -Expansion of <u>Occupational Edu.& Trg.</u> -Teacher Education System Improvement 	<ul style="list-style-type: none"> -<u>Opening of Higher Education</u> -Educational Liberation and Decentralization -<u>Strengthening Science Education</u> -<u>Life-Long Education</u>
Educational Loan Policies	<ul style="list-style-type: none"> -Bilateral technical cooperation grants -Distribution of Textbooks 	<ul style="list-style-type: none"> -Multilateral loans -Specific Investment Loans -Fostering Skilled workers & technicians 	<ul style="list-style-type: none"> -Bilateral/Multilateral Sector loans -Fostering Professional Scientists & engineers -Promotion of R & D -Basic Science Education

Source: Lee (2000) rearranged by the author

In contrast to Korea, it is not easy in Mexico to see a close linkage between national development strategy on the one hand and educational development and loan policies on the other hand (Table 6). Before 1962, although Mexico's economic development strategy was import-substitution industrialization (ISI), the 11-year educational development plan (1958-68) emphasized primary education including massive school construction and textbooks distribution. However, only the first half of the plan (1958-61) was actually implemented.

Starting with 1962, the economic development strategy continued with ISI with emphasis on light manufacturing industries. In congruence with this economic development strategy, the 14-Year Educational Development Plan (1966-81) was announced, but was implemented for only one year. Since then, the expansion of technical secondary education was carried out, but only through 1973. After the first oil-shock in 1974, the government stressed oil and chemical industry development. However, the educational policies stepped up investment in higher education without an adequate supply of skilled workers and technicians first.

During the large part of the 1980s, the Mexican government muddled through the debt crisis without clear development strategies. It was only during the late 1980s that the structural reform for economic stabilization and trade liberalization took off. However, the government's educational policies emphasized the relative expansion of higher education at the expense of primary education. Technical secondary education was also boosted with loans from the World Bank. There was no clear linkage between the economic development plan and the educational loan policies.

In the 1990s, the Mexican government's reformed economic strategy was highlighted with export-oriented development, especially for machinery and service industries supported by the North America Free Trade Agreement in 1994. However, the

government's educational and loan policies during the first half of the 1990s emphasized primary and basic education to compensate for the past neglect, and then higher education during the second half of the decade, skipping secondary education. Again, no consistent linkage was sustained between the national development policies and educational or loan policies.

Table 6. Linkage between World Bank education loans and Government's Development Strategy in Mexico (1960s-1990s)

	1962-1979	1980s	1990s
Economic Development Strategy	- <u>Import- Substitution Industrialization</u> -Since the first oil-shock, <u>oil and heavy chemical</u> industries	- <u>Muddling through</u> the Debt Crisis - <u>Structural Reform</u> starts	- <u>Export-Led</u> Development (NAFTA) - <u>Machinery</u> Industry - <u>Service</u> Industry
Major Educational Policies	-11-Year Education Plan (1958-68) with emphasis on primary education. -14-Year Education Plan(1966-1981) carried out only 1 year -Expansion of <u>secondary education</u> with technical orientation. -Rapid expansion of <u>higher education</u> since 1975	-Sharp <u>Cuts in Primary</u> Education -Expansion of <u>Technical Secondary</u> Education. -Rapid expansion of <u>Higher Education</u>	-Compensatory expansion of <u>Primary education</u> -Educational <u>Decentralization</u>
Educational Loan Policies	-No bilateral or multilateral loans/ credits for education	-Multilateral loans for <u>technical secondary</u> education	-Multilateral loans for <u>primary and basic</u> education - <u>Higher</u> Education Financing Loan

Source: compiled by the author based on Cardoso and Helwege (1997), Birdsall and Jaspersen (1997), and Edwards (1995) and World Bank website (www.worldbank.org)

3.3 Educational Investment Priority and Sequence

To enhance educational investment's contribution to economic growth, it is important to select educational investment projects in line with the economic development stage and strategy. It is more so in particular when the objective of the educational investment is not to satisfy the internal needs of the educational system, but to meet the demand of the economic development strategy since the economic development itself has

stages or an internal sequence (Clark 1949, Lewis 1955, Rostow 1960). The degree of alignment between the economic development strategies and the educational development policies must be reflected in the priorities and sequence of the educational investment in different countries.

The Korean government followed an appropriate sequence or priority of educational investment to enhance its contribution to economic growth, and the World Bank loans/credits supported this investment sequence and priority in the education sector (Figure 2). The government focused on investment in primary education and adult literacy during the 1950s when the government pursued promotion of agricultural production and productivity. It achieved universal primary education (an enrollment rate of 96%) in 1958. This universal primary education provided a sound basis for the heavy investment in the middle level education to foster skilled workers and technicians needed for the promotion of export-oriented light and heavy industries in the 1960s and 1970s (Kwack 2008). This sequence and priority of investment was supported by the four World Bank educational loans/credits for middle level education and resultant universal secondary education during the same period. In the 1980s and 1990s, the Government pursued the technology-intensive knowledge-based economy through investment for the expansion of higher education and improvement of science and engineering education and research. The six World Bank educational loans supported this investment sequence and priority during the same period.

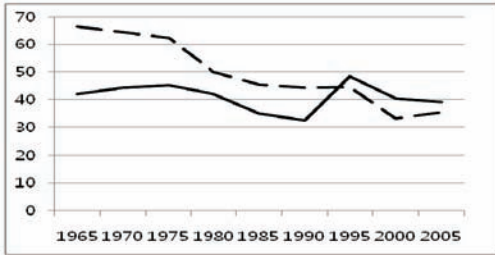
However, Mexico followed an educational investment sequence and priority quite different from Korea (Table 7). Insisting on a balanced investment premise, Mexico has placed priority on investment in the secondary and tertiary levels of education, especially in the tertiary level, to date. As a result, universal primary education was achieved only in the 1990s, compared with the 1950s in Korea, and the enrollment rates at the secondary and tertiary education levels are much lower than in Korea (Figure 3). The supply of well educated and skilled workers needed by industry in Mexico is lagging well behind the situation in Korea. Moreover, wage and income differentials among workers by level of education remain wider than in Korea (Jaspersen 1997).

Table 7. Comparison of the Sequence and Priority of Educational Investment in Korea and Mexico

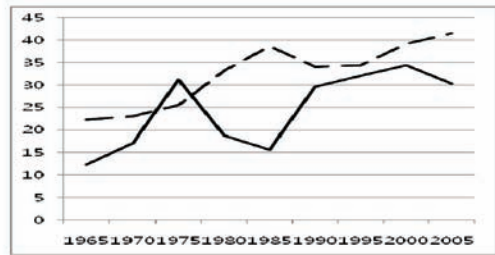
	Korea	Mexico
1960s	Primary/Secondary	Tertiary
1970s	Secondary	Secondary/Tertiary
1980s	Secondary/Tertiary	Tertiary
1990s	Tertiary	Primary/Secondary

Source: Figures 2 and 3

Primary Education

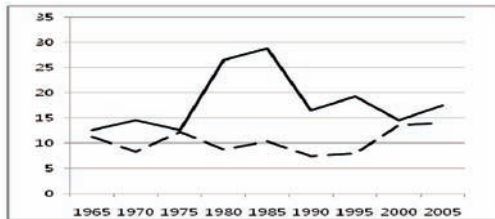


Secondary Education

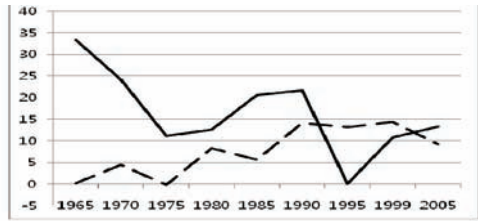


*Solid line: Mexico; Dotted line: Korea

Tertiary Education



Other Education

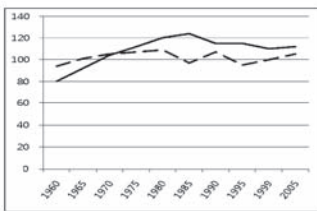


*Solid Line: Mexico; Dotted Line: Korea

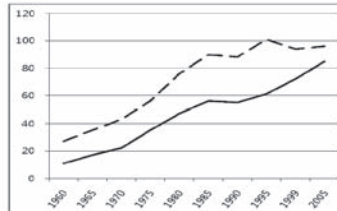
Source: Unesco Statistical Yearbooks

Figure 2. Distribution of Public Education Expenditures by Level in Mexico and Korea (%)

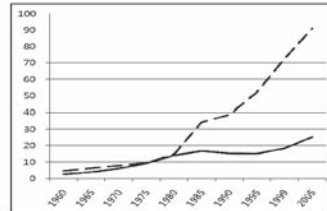
Primary Education



Secondary Education



Tertiary Education



*Solid Line: Mexico; Dotted Line: Korea

Source: Unesco Statistical Yearbooks

Figure 3. The Gross Enrollment Rates at Different Levels in Mexico and Korea (%)

In sum, a comparison between Korea and Mexico in the educational investment sequence and priority shows a sharp contrast. As mentioned before, Mexico's per capita income was much higher than Korea's during the period 1960-1970. Likewise, Mexico's (like many other developing countries') per capita public educational expenditures were higher than Korea's. Therefore, we may infer that the better economic growth performance in Korea during the 1960s-1990s was not due to a greater quantity of educational investment. Rather it was due, to some extent, to its quality of educational investment, i.e., to Korea's educational investment sequence and priority, which were different from those in Mexico and Sub-Saharan African countries (Fredriksen and Tan 2008). The differing educational investment sequence and priority in Korea were supported by a series of World Bank loans and credits during the same period.

3.4 Sector Analyses and Sector Loans

There are at least three additional features in the design and implementation of the World Bank educational loan/credit projects in Korea in comparison with other countries, especially Mexico. They are: first, sector analyses; second, sector loans; and third, periodic monitoring and supervision practice. Firstly, in the 1970s, the government of Korea obtained four educational loans/credits in series and implemented them effectively. This successful implementation record may owe to the commitment and dedication of the Korean officials in charge of the execution of the projects. However, no less contribution was made by the World Bank staff members, who showed deep understanding and offered advice to the Korean officials regarding the education sector issues and government policies on the basis of the sector studies conducted jointly by both Korean and World Bank staff. Without such studies they would have wasted a lot of time in exchanging views on the educational policies and in agreeing on the objectives, contents, and implementation processes of the proposed loan/credit projects. There were three education sector analyses in the 1970s, and one in the 1980s and another three studies in the 1990s. In Mexico, however, there was a dearth of such sector analyses. During the twenty year period 1980s-1990s, there was only one such education sector analysis made as late as in the 1990s (Table 8).

Table 8. Number of Education Sector Analyses and Sector Loans in Korea and Mexico.

	Korea		Mexico	
	Education Sector Analysis	Education Loans (of which, Sector Loans)	Education Sector Analysis	Education Loans (Sector Loans)
1960s	0	1	0	0
1970s	3	3	0	0
1980s	1	2 (2)	0	3
1990s	3	6 (6)	1	9 (1)

Source: World Bank website (www.worldbank.org)

On the basis of the survey of a large number of projects performance evaluations, the World Bank concluded that failures of Bank-financed investment projects were due mostly to the failures at the projects identification and appraisal stages, which were often caused by the weaknesses in the sector analysis (World Bank 1992). Such lessons are important especially for the countries borrowing from the Bank for the first time in the education sector. Sector analyses cover not only issues, policies, and investment priorities, but also institutional and socio-economic-political constraints, and therefore offer a good framework for appraisal and effective implementation of education projects. Moreover, as sector analyses deal with investment priorities in the education sector, they also provide identification of a series of education projects. During the 1970s three education sector analyses enabled the World Bank and Korean officials to agree on the identification of three education projects. During the 1980s one sector analysis led to identification of two education projects, and during the 1990s three sector analyses resulted in six education projects.

Secondly, the highlights of the World Bank education loans in the second period (1980-1999), starting with the fifth education loan, were that the loans were not provided for specific investment projects, which required the contents, scope, locations, costs and other parameters of the projects to be predetermined at appraisal. Rather, those loans were provided for a sector program, which typically includes several specific investment subprojects to be defined and appraised in the course of the implementation of a loan project.

Sector program loans have several merits. First, they normally support a large investment program that can contain several specific investment subprojects as a means of implementing educational sector policies. Therefore, they are normally of great scale and can deliver the borrower a large amount of capital in a short period of time. Second, a sector program loan is flexible and effective since it is provided to implement a set of sector policies or establish some institutions. A lender can monitor and supervise implementation of the project on the basis of an accompanying sector policy paper, which is more flexible and effective than a loan agreement. Also, a borrower does not need to prepare and implement all subprojects at appraisal, but can do so flexibly in the course of the progress of the sector program.

The eight World Bank education loans during the second period in Korea took the form of sector program loans, and they were implemented without many difficulties. The project executing agency at the central level was the same agency (the Ministry of Education), which had implemented four specific investment credits/loans from the same lender repeatedly over the prior ten years, and had accumulated relevant experience, information, and knowledge. Therefore, although it took more time to prepare the sector program loans, it spent less time with decreased implementation cost and was, on balance, efficient (World Bank, 1988). Mexico also obtained a total of 12 education loans from the World Bank during the 1980s and 1990s. However, only one project took the sector

program loan approach, but Mexico experienced more delays and cost overruns than Korea in implementing education loan projects.

Such lessons are consistent with the Paris Declaration for Aid Effectiveness (OECD 2005), which recommended that aid should be provided not in the form of specific investment projects, but by a sector program approach. However, this recommendation should be taken with caution. For a sector program approach, the borrower should first prepare the national economic development strategy with ownership and should then elaborate education sector policies, which would serve as the basis for a sector program loan. Moreover, the borrower should have competent staff members, who have sufficient experience with specific investment projects. For a sector program loan, preparation and implementation of the specific investment subprojects are delegated to executing agencies at a lower tier, and appraisal and supervision of such subprojects should be done by the executing agency at the central level. It is not easy to find such executing agencies with capable and experienced staff in many developing countries. Before starting with the sector program loan approach, accumulating ample experience with several specific investment projects would help build up executing agencies with capable and knowledgeable staff. The Korea's education sector followed this recommendable path with support from the World Bank.

Thirdly, the implementation of the World Bank education loans/credits projects involved monitoring and supervision visits by the World Bank staff at least twice a year. The monitoring and supervision team was composed of specialists in various areas related to project implementation. The government of Korea not only received them passively for their monitoring and supervision, but actively made use of their visits for exchange of opinions and advices over the policies and administration of the education sector in general. Such exchanges contributed to the formulation and change of the policies and development of the education sector. Examples of those policies are conversion of the upper departments of the technical high schools to independent technical junior colleges, improvement of pre-service training systems for technical high school teachers, establishment of college accreditation systems, reinforcement of the research support system of the Science Foundation, introduction and evaluation of the science curriculum at the secondary education level, improvement of the college admission system to be based on the high school performance, establishment of regional science education centers, and strengthening of the information system for the demand and supply of science and engineering professionals.

In the case of Mexico, the relationship between the projects executing agencies and the World Bank supervision teams were always cordial and cooperative. However, the relationship rarely developed into open-minded, professional discussions on the education sector issues and policies.

IV. CONCLUSION AND LESSONS LEARNED

Many studies have noted that economic growth in Korea was much faster than in other developing countries during the 1960s-1990s. They have also stated that the faster economic growth in Korea owes a great deal to intensive investment in education and accumulation of human capital. This paper has conducted a test of the hypothesis that greater investment in education was made in Korea than in other developing countries, but the results do not support the hypothesis. Korea did not make more investment in education on a per capita basis than in other developing countries at the similar level of income. Nor did Korea allocate to the education sector a greater proportion or amount of the loans/credits contracted from abroad in general and the World Bank specifically. Additionally, Korea did not spend more than other developing countries on public education on a per capita basis.

It can be therefore construed that the educational investments in Korea must have been more efficient than in other developing countries. This second hypothesis has also been examined in this paper by comparing the characteristics of educational loans/credits acquired by Korea and Mexico, respectively, from the World Bank during the period 1960s-1990s. The results do reveal significant differences between the two countries in several aspects.

First, the World Bank loans/credits for Korea repeatedly focused and concentrated on the same objectives, contents, and usages of the educational investments and maintained the same source of financing and executing agencies. Consequently, government officials in Korea participated more actively in the preparation and execution of the educational loan projects, and the learning curve of the Korean officials improved more sharply than in Mexico, and the implementation of the loan projects was more efficient in Korea.

Second, although both Korea and Mexico obtained from the World Bank the same number of twelve educational loans, the priorities and sequences of these loans and investments in the education sector were better aligned with the national development plans or strategies at different stages of development in Korea than in Mexico. Moreover, Korea started borrowing from the World Bank for educational investment by more than a decade earlier than Mexico. Therefore, economic growth may have been more enhanced by the educational loans and investments in Korea than in Mexico.

Third, as a prerequisite to the educational loans/credits, Korea collaborated with the World Bank in making a greater number of thorough analyses of the education sector than Mexico did. Such analyses provided not only information on issues, policies, constraints, and framework for appraisal of loan projects, but also opportunities for constructive and professional dialogues between the lender and the borrowers at both the preparation and implementation stages of the educational loan projects. Therefore, a greater number of the sector analyses in Korea may have contributed to the more efficient investment in education, which in turn, promoted faster economic growth in Korea than in Mexico.

Finally, Korea relied more on the sector loans than Mexico in borrowing from

the World Bank for education. The sector loan approach is a useful tool for efficient educational investments and capital transfers. However, it requires a local capacity building as a prerequisite. Korea had more opportunities to develop such local capacities earlier than Mexico by embarking on borrowing from the World Bank for the education sector earlier and more often for the specific investment loans.

In the future, a more rigorous quantitative analysis should be carried out to ascertain whether those characteristics of the World Bank educational loans extended to Korea, in comparison with the World Bank educational loans to Mexico, were really statistically significant factors contributing to faster economic growth in Korea during the 1960s-1990s.

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China's Cooperation with Africa, and Especially South Africa, in Education and Training. A Special Relationship and a Different Approach to Aid?¹

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Abstract

The paper studies the modalities which are used by China in its human resource cooperation with Africa in general, and where relevant with South Africa in particular. It covers the human resource dimensions of the Forum on China Africa Cooperation (FOCAC), pledges, paying particular attention to the latest round of commitments from the November 2009 Ministerial Conference in Egypt; it reviews the short and long term capacity building programmes for Africans in China; it considers the unique role of the Confucius Institutes in Africa, as well as the stand-alone education or training projects outside the FOCAC framework; and it briefly comments on enterprise-based training in Chinese firms. This discussion of China's educational aid modalities is embedded in a wider consideration of how China's approaches differ from the current preoccupations of traditional donors about aid harmonisation and country ownership.

Introduction

This paper is concerned with what is different about China's cooperation in education and training in Africa. This is a period when for a variety of reasons there is a growing awareness of the role of the variously named emerging donors, new actors in development aid, non-traditional donors, non-DAC donors, and even new drivers in development. Many of these terms are not particularly suitable, as the so-called new or emerging actors have often been providing assistance for many decades, e.g. China, India and South Korea. Our interest is in interrogating in what sense these actors are special or different from traditional donors. The very question underlines the challenge of such a pursuit, as it implies that there may be some common behavior by the traditional development partners, whether bilateral or multilateral. However, there remain major

¹ This paper derives in part from four weeks spent in South Africa between 3rd and 30th March 2010. Over 50 interviews were carried out by Kenneth and Pravina King with individuals in universities, ministries, development agencies and think tanks. The research on which this article is based is supported by the Leverhulme Trust; it is part of a larger study of China as a re-emerging education donor in Africa. The views in this article are the author's and may not be attributed to the Leverhulme Trust.

² The Network for Policy Research, Review and Advice on Education and Training (NORRAG) publishes an aid policy bulletin twice a year, termed NORRAG NEWS (See www.norrag.org).

differences amongst the established aid donors after decades of attention to coordination and harmonization. Many donors still prefer project aid even though the case for program-based or sector wide approaches (SWAPs) has been made for 15 years and more. This would include Japan, Germany and the USA; and in many other cases, agencies that claim to prefer sector wide approaches still find themselves with a substantial number of projects. Equally in respect of support to particular subsectors, it remains true, 20 years after Jomtien and 10 years after Dakar, with their focus and priority on basic education, that some donors, e.g. France and Germany, commit as much as 70% of their educational aid to post-basic, while others, e.g. The Netherlands and the USA, direct over 60% of their education aid to basic education (UNESCO, 2010: 229).³ Thus Western donors, not to mention Japan, are different from each other despite declarations such as Rome and Paris on the increased harmonization, coherence and effectiveness of development aid.

But Africa, too, is different. Country contexts, cultures and economies all differ, and not least in the ownership of their development policy and in their degree of aid dependence.

In looking, therefore, at what the non-traditional actors are doing in respect of education and training, there is not a common standard against which they can easily be measured, not a common recipient context in Africa. In focusing now on China's education and training aid to Africa, we shall seek to explore if there are any instruments, modalities or allocative mechanisms that are particular to China. In so doing, we shall note the pan-African dimension of China's aid,⁴ but focus more on a set of five different countries, giving some particular attention, within those, to South Africa-China relations in education and training. We shall find that there are many aspects of this latter relationship which perhaps make it exceptional.

We shall emphasize that though China has relations with almost all African countries, there are particularities in their relationship with each. There is a pan-African framework via the Forum on China-Africa Cooperation (FOCAC), but there is also still the strong bilateralism that underlines the importance of understanding the way China has chosen to work with any particular country.

Background on the exceptionalism of South Africa vis-à-vis China

Of the five countries selected as part of this research (the others are Cameroon, Egypt, Ethiopia and Kenya), South Africa stands out. It is the only one of the five that has historically had a resident population of Chinese going back long before the more recent migration of Chinese to many countries in Africa (Yap and Man, 1996). Unlike the other four countries whose diplomatic relations with the Peoples' Republic are longstanding,

³ These percentages have become less meaningful as donors, e.g. the UK, in response to sector wide priorities, have left unspecified as much as 50% of their educational aid.

⁴ China has chosen to have diplomatic relations with no less than 49 of the 53 African countries, as only four countries in the continent still recognize Taiwan.

South Africa had relations with Taiwan from 1976, and only switched to diplomatic relations with China in 1998. Over the 12 years since then there has been intense cooperation. Despite not being an oil exporter, South Africa's two-way trade with China has reached 16 billion dollars. China's much quoted preference for symmetrical, win-win cooperation between equals, rather than aid relations, is illustrated by its partnership with South Africa. A bi-national commission between the two countries was established in 2000; and there are now over 50 cooperation agreements in nuclear energy, science and technology, as well as in culture, education and tourism. The importance of scientific cooperation is signalled by the presence of a Science and Technology Counsellor, the only one in the whole of Africa, apart from Egypt.⁵

South Africa also has one of the only Education Counsellors in the whole continent, again apart from Egypt. The presence of these education counsellors points, not to aid relations, but to countries where historically significant numbers of students from China could be found, and is therefore a commentary on the quality and attraction of the universities in South Africa rather than on the numbers of South Africans seeking university education in China.

South Africa is also unusual in being one of the only African countries to be in the process of setting up a development cooperation agency (South African Development Partnership Agency [SADPA]); this will in due course take the place of the African Renaissance Fund. Thus South Africa will, like China, be in the business of providing aid funds to poorer countries at the same time as continuing to receive development assistance from external agencies. The latter will not however constitute more than 1% of gross national income.

A further area in which South Africa is different from other African countries in its relations with China is that apart from the community of Chinese South Africans who have been here for a long time, South Africa also has the largest number of new Chinese residents on the continent.⁶ As elsewhere in Africa, it is difficult to know with any precision the number of these economic migrants but the total is widely said to be around 300,000; and some estimates reach half a million.

Intriguingly, when Taiwan was linked diplomatically to South Africa, its migrant population reached a total of 30,000 in the eighties and early nineties, a key element of them being industrialists responsible for setting up factories in the remoter parts of South Africa. Taiwanese numbers have since declined dramatically, and are now around 6,000 (Park, 2008: 166).

A last dimension on which South Africa is special is that it has become the source

⁵ Science and Technology Counselors at the country level are widespread in China's embassies in Europe, North America, East and South Asia.

⁶ Part of the uniqueness of China-South Africa relations is that the Chinese residents prior to 1998 have been declared 'black' because of the history of discrimination against them, and they thus have access to the support of Black Economic Empowerment, while the majority of more recent migrants are classified as Chinese.

of a great deal of the knowledge about what China is doing in all parts of Africa. The Centre for Chinese Studies started in the University of Stellenbosch in 2004, as the first and still the only Centre for Chinese Studies (CCS) in Africa. It has covered a great deal of China's engagement in Africa over the past 6 years including, for instance, on infrastructure development, the relevance of Chinese agricultural technology for Africa, China's aid modalities in Africa, patterns of Chinese investment, aid and trade in specific countries, and, most recently, an evaluation up to 2009 of the Forum on China Africa Cooperation which for the last ten years has been the key umbrella mechanism for China's engagement with the whole of Africa. Apart from this commissioned research, there have been academic articles, but also very valuable for scholars following China-Africa developments have been the Centre's weekly *China Briefing*, and its almost 56 issues of *China Monitor* (www.ccs.org.za).

Following the move of its first director, Martyn Davies, from CCS to the Gordon Institute of Business Science (GIBS) of the University of Pretoria in late 2009, there has developed a further South African source of regular China-Africa information and analysis through the launch of the China Africa Network (CAN) and the *China Africa Business Weekly* (from March 2010) as well as the monthly *China Africa Focus*. This new network has a much more explicit business focus than the CCS, and it intends 'to facilitate and promote the competitiveness of African private sectors and economies vis-a-vis their engagement with China' (China Africa Network, March 2010).

These special factors in the positioning of China in South Africa make it very different from other countries such as Ethiopia, Kenya, and Cameroon which have been analysed in this research (King, 2009a, 2010; Nordtveit, 2010). China is in some ways both less and more visible in South Africa than in many other countries of the continent. It is not responsible, for example, for any of the massive stadia erected for the FIFA World Cup of June/July 2010, nor is it responsible for driving highways through the great cities and the countryside of South Africa as is so evident in, say, Ethiopia. Nor is the purchase by the Industrial and Commercial Bank of China of 20% of the Standard Bank of South Africa, for more than 5 billion dollars, particularly visible to ordinary South Africans.

Perhaps increasingly evident is the opening of Chinese supermarkets and China Town malls in cities and large towns, and even in small rural villages, the Chinese general store is becoming commonplace. China's new embassy, the largest in Pretoria, opened in April 2010. It dwarfs that of India which is often called the other 'Asian Driver' along with China.

What do any of these special factors imply for China's role in education and training in South Africa? For the almost 20 years since the unbanning of the ANC and the release of Mandela, South Africa has prided itself on the strong ownership of its policies in education and training. This is reminiscent of India in the same sector (Colclough and De, 2010). Hence it is understood that any external aid in the education and training sector should fall in line with existing country policies.

When it comes to the main modalities of China's cooperation in education and

training, such as the long-term scholarships and short-term training, it should not be surprising that these are not as salient items of competition in South Africa as in countries such as Kenya or Ethiopia. Equally, as mentioned above, there is as much or even more interest in Chinese students coming to study in South Africa as the other way round. This is, as we have said, a commentary on the quality of the key universities in South Africa in the eyes of the majority of non-white South Africans and overseas Chinese students, rather than any criticism of Chinese universities.⁷

Similarly, when it comes to the introduction of Confucius Institutes in South Africa, there would appear, in some situations, to have been some more questions raised about their role, ideology and positioning in university settings in South Africa than have been raised elsewhere on the continent.

On the FOCAC pledges from the great Beijing summit of November 2006, it would seem that two of the items, the 100 rural schools and the 300 young volunteers, were not seen as particularly relevant to South Africa. But in the case of the latest November 2009 FOCAC Ministerial Conference in Sharm el Shaikh, Egypt, the targets seem particularly germane to South Africa. Indeed it might be argued that the very pledges of China-Africa science and technology partnerships are in a real sense already in place in South Africa, as was referred to above. It might be claimed that the existing model of scientific cooperation between South Africa and China has become the very modality proposed for the whole of Africa in some of the new pledges from FOCAC 2009 (Ni and Wang, 2009). However, the China-South Africa collaboration seems to be much more of a genuinely symmetrical partnership than an aid relationship. If the same kind of partnership in science and technology is to be attempted in many of the other countries of Africa, with their weaker scientific and tertiary institutions, it may involve more of an aid mechanism than a regular, symmetrical partnership amongst equals.

In what follows, we shall review in more detail some of these key dimensions of China's human resources collaboration with South Africa and with Africa more generally. There are also a number of bilateral human resource projects which China has undertaken with South Africa, outside of the 2006 FOCAC framework, as well as one or two projects, such as the aquaculture technology demonstration centre, that fall more directly within the FOCAC framework from the Beijing Summit.

But we shall need to review China's support to education and training within the specific context of how South Africa regards development assistance more generally. Equally, we shall need to consider how South Africa with its unique history of receiving support for the struggle during the apartheid era views the continuation of support in the era of majority rule. Ultimately, as we have seen in other countries like Kenya and Ethiopia, the attitudes of South Africans towards study in China, or learning Mandarin, are influenced by the perceptions of China as a global power, as well as by the more local

⁷ See Cyranowski (2010) for a recent debate about the quality of Chinese universities in the eyes of South Africans.

perceptions of China as an investor in South Africa, and as its main trading partner.

During the long era of apartheid, ordinary South Africans were effectively cut off from what was happening more generally in the continent, as well as from the opportunities to study abroad, except when they left their own country as refugees or joined the freedom struggle. South African industry was built up behind a wall of enforced protection through international sanctions. The progressive removal of industrial protection from the time of majority rule in 1994 has been associated in the public mind with the loss of South African jobs. Cheaper Chinese imports are intimately linked to this loss of manufacturing jobs, especially in textiles, but also more generally. The South African trade union movement has witnessed the dramatic effects of the removal of protection from South African jobs and South African firms. It has therefore developed a view of China as more of a threat to South African training opportunities than as a source of new training provision in China. Hence the offer by China to support vocational training in South Africa cannot be separated in some quarters from the perceived threat to training and jobs which is associated with Chinese trade and investment. Here is a concluding comment from the CCS review of the FOCAC process in Africa up to 2009: ‘Labour issues comprise the foremost challenge in terms of the long term effects of Chinese aid and the presence of Chinese companies in African countries’ (CCS, 2010: 188).

Detailed review of China’s modalities for cooperation in education and training

We shall now in more detail analyse the modalities which are used by China in its human resource cooperation with Africa in general, and where relevant with South Africa. We shall cover 1) the human resource dimensions of the FOCAC pledges, paying particular attention to the latest round of commitments from the November 2009 Ministerial Conference in Egypt; 2) the short and long term capacity building of Africans in China; 3) the role of the Confucius Institutes in Africa; 4) stand-alone education or training projects outside the FOCAC framework; 5) enterprise-based training in Chinese firms.

The latest human resource FOCAC commitments to Africa for 2010-2012

China is unique amongst donors in having a mechanism, the Forum on China-Africa Cooperation, that deals with virtually the whole of Africa. Unlike many traditional donors such as France and Britain, it does not cooperate principally with a special subset of countries with historic, linguistic, geographic or economic ties with the donor country. Also, China seeks historically to avoid these FOCAC engagements appearing like aid or development assistance. Rather they are presented as elements of a joint agreement between two partners, ‘featuring political equality and mutual trust, economic win-win cooperation and cultural exchanges’ (FOCAC 2009b: para. 1.2). China

would argue, like Japan, that its cooperation is basically in the response mode. Both countries have substantial bilateral discussions therefore at the country level, leading to country programmes, but they also have continent-wide agreements through the Tokyo International Conference on African Development (TICAD) and FOCAC. Indeed it could be claimed that the very clear three year target orientation of the FOCAC process has influenced TICAD, leading to its also engaging in very active follow-up measures on the implementation of pledges.

Be that as it may, the FOCAC action plan for Africa is not an accumulation of a whole series of individual country plans but a framework that has maintained a rather similar pattern over several FOCAC triennia since its inception in 2000: there is, first of all, political cooperation, then cooperation in international affairs, and economic cooperation, followed by 'cooperation in the field of development' and finally 'cultural and people to people exchanges and cooperation'. Human resources development falls under cooperation in development, and a good deal of the education and training measures can be found there. But it is also worth noting that items like the training of 2000 agricultural technicians and the sending of 50 agricultural technology teams to Africa fall under Economic Cooperation. Equally, the 'China-Africa joint research and exchange plan to strengthen cooperation and exchanges between scholars and think tanks' falls under the people to people exchanges and cooperation. This is probably best explained as the FOCAC process drawing together the many different plans of various sectoral ministries in China.

The specifically education pledges build on the format of the previous commitments, with an increase in long term Chinese government scholarships to 5,500 by 2012; a pledge to help with teacher and head teacher training (1500); and a new 20+20 cooperation plan for more intensive one-to-one cooperation between 20 Chinese universities or vocational colleges and 20 African counterparts. Intriguingly, the 100 rural schools of the previous plan (2007-2009) have turned into 50 China-Africa friendship schools for the next triennium. By contrast, there is a pledge to develop Masters in Publication Administration (MPA) training of 200 middle and high level administrative personnel in programmes in China. Finally, in the 'education' section, there is a strong commitment to continue to develop Confucius institutes, increase scholarships to African teachers of Chinese, and a redoubling of efforts to raise the capacity of African teachers of Chinese. Under human resources development, but not education, there is the continued commitment to the massive short term training of what FOCAC used to call 'professionals' – now just 20,000 'people from different sectors in Africa'.

One of the biggest additions to the FOCAC pledges in the present agenda is the strengthened commitment to science and technology cooperation. This now includes the launch of a China-Africa science and technology partnership plan, the execution by China of 100 joint research and demonstration projects, and the invitation to 100 African 'postdoctors' to conduct scientific research in China.

Similarly in the field of medical cooperation, where the Chinese had built 30

hospitals and 30 malaria treatment centres in the previous triennium, they are now proposing medical equipment, the training of 3000 doctors, nurses and administrative personnel, as well as contributing US\$1.5 million to support the New Partnership for Africa's Development's (NEPAD) nurse training and maternity projects.

How are we to characterise this set of very varied pledges in terms of China's aid modalities and approaches, or in terms of the leverage these offers might have on the recipient countries? First, we can say safely say that this agenda does not mirror the EFA priorities of Jomtien and Dakar, and though FOCAC 2009 notes the urgent task of achieving the MDGs, it sees the obligation of the developed countries in particular to deliver here on their earlier pledges. Second, although FOCAC is not a bilateral commitment but a Pan-African one, it will very explicitly be executed by Chinese universities or vocational colleges, think tanks, scientists, agricultural technologists or language teachers, as well as medical personnel. In other words, thirdly, Chinese expertise is central to the execution of these elements of the FOCAC agenda, just as elsewhere on the agenda, Chinese firms and Chinese entrepreneurs are seen as critical. In point of fact, this emphasis on China's experts and expertise parallels Japan's very strong commitment to using its own technical assistance for and in Africa.⁸

In terms of whether FOCAC's focus is at the basic education and training level or at the post-basic, the sheer numbers of short term trainees (20,000); China Scholarships (5,500); doctors and nurse training (3000), agricultural technicians (2,000) not to mention the postdocs, NEPAD trainees and others, come to a figure of well over 30,000 African personnel at the post-basic level. How precisely these very specific categories get decided upon jointly when there are 49 African partners, and one non-African partner, China, is not well-known, or much researched,⁹ but, as we have said above, it becomes more complicated when it is recalled that the FOCAC agenda also includes the priorities of the multiple Chinese Ministries of Commerce, Foreign Affairs, Culture, Education, Science & Technology, Agriculture, and Medicine, to mention just a few.

The priority setting and the translation into a consensus document for FOCAC are a substantial diplomatic achievement. But the allocative challenge of distributing all these varied offers across an enormous variety of African contexts must be huge, and involve staff in many Chinese and African ministries, host universities in China, as well as both the political and economic & commercial branches of all of China's African embassies. Some sense of the sheer scale of the activities associated with the FOCAC process can be gathered from a brief look at the summary FOCAC document on 'Implementation of the follow-up actions of the Beijing Summit of the Forum on China-Africa Cooperation' which was presented at the end of the 3 year period 2007-2009 (FOCAC, 2009a).

It should be remembered also that unlike many of the more established agencies such as DFID and USAID which have professional cadres associated with gender,

⁸ For a comparison of the similarities of Chinese and Japanese cooperation approaches, see King (2007) *China's aid to Africa: a view from China and Japan*.

⁹ But see King (2009b) *China's cooperation with Africa: meeting the FOCAC targets*.

environment, education, social development, and governance, China has not developed these groups of professionals. It will be recalled that across the whole of Africa, China only has two Education Counsellors and two Science and Technology Counsellors, and their responsibilities have been focused on just two countries. Again, Japan has been more like China, relying on generalists and a very small number of professionals until a relatively recent attempt to develop more professional communities of practice within JICA.¹⁰

Locating and categorising the unique¹¹ and dramatic case of the Confucius Institutes

It has been commonplace to position the rise in the last six years of the Confucius Institutes as something parallel to the British Council, Goethe Institutes, or Alliance Française – as another form of cultural diplomacy. There are however very significant differences, and not least the claim by China that the spread of Confucius Institutes should be demand-driven, and not the object of a particular FOCAC numerical target. This is expressed as ‘the principle of the foreign party taking precedence whilst the Chinese party plays the role of providing assistance’ (<http://english.hanban.org/hbsm.php>). Hence we have the outcome that there are 56 CIs in the USA and just 23 in the whole of Africa. This spread world-wide does make the CI seem parallel, in a small way, to the British Council and other cultural bodies, which are often associated as much with their countries’ Foreign Office as they are with development aid. But what may make the Confucius Institutes exceptional as a mechanism and as an approach is that they are not located on the main streets of the world’s capital cities and regional capitals, but rather in the heart of their major universities.¹² Thus in the UK, the CIs can be found in the School of Oriental and African Studies (SOAS), and in the Universities of Edinburgh, Manchester, Liverpool, Nottingham and Sheffield, to mention just a few. Similarly, they can be found in the University of Nairobi, Rhodes University, and University of Cairo, and a further twenty sites in Africa. As their principal focus is the promotion of Mandarin, and Chinese culture, it should not be surprising that their parent body, Han Ban, the Confucius Institute Headquarters, should be a public body affiliated to the Ministry of Education.

Like the British Council at a certain point in its history, there are many varieties of scholarships linked to Chinese language improvement from Han Ban; these can be both long and short term, and in addition there has been a recent development of a three week

¹⁰ See King and McGrath (2004) *Knowledge for Development?* – for an account of this process in JICA.

¹¹ None of the other obvious BRICS nations, such as India, Brazil or Russia, has sought to promote its major national language in the way that China has done. Nor has Japan done so during its economic ascendancy, perhaps not least because it did so unsuccessfully during the 1930s in its military expansion in South East Asia and the Pacific.

¹² There are five CI models, of which the partnerships between the foreign and Chinese universities, and between Chinese and foreign secondary schools (the Confucius Classroom) are the best known. But there are also CI partnerships possible between foreign NGOs and a Chinese university, between foreign and Chinese governments, and between enterprises and universities. See further <http://english.hanban.org/hbsm.php>

summer ‘camp’ which has been bringing groups of Chinese language learners from a whole series of different universities and secondary schools to spend time in China. The sheer range of opportunities from Confucius Institute Scholarships to short-term language exposure is very considerable. [Even from one institute in the University of Nairobi there were about 40 opportunities to go to China in 2009/2010, while in another, the University of Rhodes, there were opportunities for 26 first and second year students of Chinese to go to China in 2010.) Taken over the whole of the 282 Confucius Institutes and 272 Confucius Classrooms, worldwide, the total number of training opportunities in China must be very large indeed.

A further distinguishing modality of the Confucius Institute and Classroom is that each of these bodies overseas is formally linked to an appropriate university or secondary school in China. This partnership then provides the source of the Chinese co-director of the Confucius Institutes in Africa as well as of the regular and volunteer teachers of Chinese to go to the African university. The Chinese partner can also become the host for the different scholarship and other language visitors to China. This crucial school and university partnership arrangement provides an attractive modality for a world that is increasingly keen to develop on-going links with Chinese educational institutions.

As to locating the Confucius Institute as a particular cooperation modality, there are clearly problems with identifying it as a form of official development assistance (ODA), for the good reason that more than 50% of the support from China is going to so-called developed countries (94 Confucius Institutes are in Europe and 60 are in USA and Canada). Yet all Confucius currently receive a generous annual subsidy for their work, apart from receiving language teachers and volunteers. Furthermore, it is clear that there is scope for the Confucius Institute to become a mechanism for widening the inter-university cooperation beyond language to include Chinese studies and culture. It will be interesting to see if in certain university settings, this may develop into larger Centres for Chinese Studies.

This raises the further question of the character of the additionality associated with the Confucius Institute. There are broadly two modalities: in the case where the CI arrives in a University such as Rhodes or Nairobi where has been no previous teaching of Chinese language or culture, the CI has been responsible for introducing the study of Chinese at the degree level into the university system. On the other hand, when the CI is invited to a university which already has the teaching of Chinese embedded in its degree system, as for example in Stellenbosch, Edinburgh or in London, then the CI may well play a role in strengthening that provision, but becomes principally identified with a range of non-credit bearing offerings, both for regular students who want additional support, but also for a whole range of extra-mural students. It can also be responsible for seminars and special lectures relating to China.

At the more general level, the CI movement may be classified as a form of soft power, or cultural diplomacy, but those terms do not do justice to the demand side of the CI equation. The CIs are not so much creating the demand for Chinese language learning

but are responding to a widespread vocational interest in many countries for acquiring expertise in Chinese. And this interest is of course inseparable from the very visible presence of Chinese enterprise, industry and commerce in so many different countries, especially in Africa.

China's stand-alone education and training projects in Africa, outside the FOCAC framework

Thus far we have looked briefly at two large-scale frameworks within African countries which have been supported educationally. The FOCAC framework has operated as a uniquely pan-African modality for relating to Africa, and within that, there have been a series of HRD, cultural, education and training commitments offered to, and agreed with, the whole of Africa, excepting the 4 countries maintaining diplomatic relations with Taiwan. Countries may differ in the extent they may be able to profit from these FOCAC offers, and that may be determined by their economic status, as well as by the visibility and impact of China's wider presence in the country.

In contrast, the Confucius Institute framework, though mentioned in the later FOCAC agreements, is very much wider than Africa; indeed only a 12th of the worldwide CIs are in Africa, and only four of the Confucius Classrooms.

Apart from these frameworks, China has continued to give considerable attention to its bilateral commitments to African countries, and in fact there has been a long tradition of very senior politicians visiting Africa annually for much of the last 20 years. Typically, this has been the Chinese foreign minister, and in January 2010, Yang Jiechi commented: 'At the beginning of every year, China's foreign minister visits Africa. This is a good tradition that dates back 20 years' (www.focac.org/eng/zfgx/zzjw/t650173.htm). This year he covered Kenya, Nigeria, Sierra Leone, Algeria and Morocco. And regularly these bilateral visits end in both sides signing off on a series of bilateral agreements. Of course, these non-FOCAC bilateral commitments cover a wide range of areas, but again like Japan they tend to be driven by the priorities of the African partners.

It should not therefore be surprising that African partner governments have tended to prioritise development projects that have proved difficult to secure from other traditional agency sources, such as infrastructure, and especially roads, dams, power projects, stadia. By contrast, many OECD donors have been ready to support elements that are central to the delivery of the MDGs, including basic education, and basic health care. This is not to say that human resource development projects, including formal education, have not figured on China's cooperation agenda with Africa. But unlike DFID, for instance, it is certainly not allocating £10 million sterling a year to basic education as DFID is in Kenya and Ghana. Rather, it is responding to countries that have made specific education initiatives a priority. Hence in Ethiopia which has been focusing on both basic and higher education in recent years, few traditional donors are competing to fund tertiary education. Hence, China has been responsible for building, equipping and staffing the large Ethio-

China Polytechnic College in the capital. Similarly in Malawi, China has recently agreed to construct a new Science University as one of five major development projects signed after Malawi signed up to diplomatic relations with the PRC instead of Taiwan. In a further project supporting NEPAD's education and training project, China has agreed to fund the development of a clinical master's degree for nurse training in five African countries.

South Africa offers an intriguing illustration of how the allocative mechanisms for deciding on an education and training project can work out in practice, following the offer of substantial development assistance by the Chinese President in his visit to South Africa in early 2007. This may be particularly complicated when the offer of assistance comes from a partner that is not dictating what its money should be spent on, and when there is a receiving partner that could be characterised as not aid-dependent, and which has had a tradition of looking critically at all offers of development aid, especially in the field of education.¹³ The result was that project moved from the request for a new technical college to the renovation of several established colleges. But South Africa, for some of the reasons alluded to earlier, wanted to be sure that, to the extent possible, the materials and the human resources deployed on the project would be sourced within South Africa. The outcome, however, has been that a full three years after the rather generous offer of assistance, there has been very little action on the moneys offered. Whatever the pros and cons of the lengthy delay, this episode suggests that at least in this particular example, there has so far been little evidence of the aid funds being used in a way that is complementary or additional to national funding. They have not been used at all!

Chinese enterprise in Africa as a major source of capacity building?

For a country that does not conceptualise ODA as completely separate from many of the other dimensions of China's presence in Africa, it is important at least briefly to acknowledge that many if not most of China's major investments in Africa also have an HRD component. While it is important, therefore, to note the quite explicit HRD targets as we have done earlier in analysing the FOCAC process, it is also important to recognise that many of the largest Chinese investments in Africa have a crucially important capacity-building element. This is true both of China's private sector investments, as well as those carried out by state-owned enterprises. Whether these investments are in telecoms, roads, railways, construction or water development, there are major capacity building components. Sometimes these are quite explicit as in the training of several thousand telecom engineers in ZTE's massive project across the whole of Ethiopia, and sometimes the new skills are learnt on the job without the target numbers being pre-specified in the project documents. But what is critical in these training processes are the differential training policies adopted by the different African governments. Clearly, these can have a

¹³ See King (1999).

major impact on the training regime adopted by the Chinese contractors. Where countries are concerned about the long-term sustainability of the infrastructure project, there may be a different approach to capacity building than when a government, perhaps for political reasons, just wants a project finished in the fastest possible time.

There are other aspects of enterprise-based training that need at least to be acknowledged even if they cannot be elaborated here. There is a very widespread admiration in Africa for the productivity and culture of hard work of Chinese skilled workers and technicians. There is also a recognition that unlike many Western experts, the Chinese still largely follow one of the eight principles of foreign aid enunciated in the early 1960s in Africa by Zhou Enlai:

The experts dispatched by China to help in construction in the recipient countries will have the same standard of living as the experts of the recipient country. The Chinese experts are not allowed to make any special demands or enjoy any special amenities. (China, Ministry of Foreign Affairs, 2000)

Again, there is a similarity in this strain of Chinese thinking about expertise to the way that Japanese aid archetypically projects their many experts as being 'in the paddy-field' rather than in advisory offices next to the minister. Brautigam's critical analysis of the many allegations about China's 'hordes of experts' and her experienced assessment of China's 'capacity building' in Africa broadly confirm that while there are some very significant differences from Western donors in the way that China does its aid, capacity building and technology transfer, 'the Chinese have not yet figured out how to build capacity or really transfer their skills' (Brautigam, 2009: 161).

Concluding reflections

It is difficult to draw firm conclusions from this brief discussion of some of the apparent modalities of Chinese aid to the human resources sector. The principal difficulty in doing so is that the Chinese don't discuss openly options for the allocation and use of educational aid. There is not an accessible account of the trade-offs of investing in basic education versus secondary or higher as there has been in the West for decades. As far as I know, there is nothing resembling an education sector policy for aid of the kind that has been widespread in the West for 40 years. This is crucially important to emphasise and underline again and again. Education cooperation is not perceived as a stand-alone sector. And although we have sought to comment on whether those 'HRD' elements of the FOCAC agreements are on balance more tilted towards higher education than basic, this is ultimately a somewhat artificial exercise. The FOCAC agreements should not be broken down into the well-worn sectors or sub-sectors associated with Western donors, any more than should China's African policy of 2006 (China, 2006) be mined for what is said, in two paragraphs, about cooperation in human resources development and education.

Ultimately all the many elements of China's cooperation with Africa are inseparable from the political, economic and trade engagements with Africa. Discussions of the kind that take place in the aid chapter of the recent EFA Global Monitoring Reports, which are a good deal to do with allocation **within** the education sector, are a world away from China's view of HRD as a completely integral element of development policy and politics, whether in the West of China or in Africa.

Consequently, it should not be surprising that China does not spend much time thinking about whether its educational aid could be better harmonised with and be more complementary to that of other education donors. It may still be useful to sort out, as we have tried to do, some of what constitutes HRD in China's engagement with Africa, and what is special about its relations with South Africa. There are clearly some complex allocation challenges in determining how some 20,000 short term training awards, for instance, should be distributed across 49 African countries, but that will not be so much of an HRD discussion as one that takes place at a much higher political and strategic level.

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How to Develop the UNESCO the World Needs: The Challenges of Reform

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Abstract

The world needs more public goods in education, especially statistics, research and shared experience. UNESCO should be the place to turn for these public goods but its politicization and its limited technical and human resources mean that it cannot at present fulfill that role, a role now partially filled by others, all of whom wish that UNESCO were a stronger institution. Reform is possible, however, as two achievements of the past decade demonstrate (the establishment of the UNESCO Institute for Statistics and of the Education for All Global Monitoring Report) but will require tackling several issues simultaneously, many of them more about UNESCO's overall budget and human resources policies and practices than specific to its education sector. Leadership and some transitional finance will be essential for effective reform.

The Need

Suppose you were a minister or senior civil servant responsible for a country's education system. Your country's system is, of course, specific to your country. However, like most countries your country is committed to achieving the education millennium development goals and the Education for All goals. Beyond these relatively limited goals concerned with basic education, you would want to be developing a strategy for your country's future educational development. To meet the goals and to develop a strategy, you would want to know how your country is doing compared to other countries. You would want to know how other countries had tackled and are tackling such issues as the financing of education, the assessment of learning, the balance of the curriculum, the training of teachers, the provision of technical and vocational training and the allocation of limited higher education places. You would probably want to have some fora to discuss issues with colleagues from other countries. And you would want to know that your source of information was objective and unbiased.

If you were the minister from an OECD country, you could turn to OECD for this sort of information, though you would miss the opportunity to learn also from non-OECD countries. Even if you were not from a high income OECD member country, you might turn to OECD – participation in its PISA and other international assessments now includes

¹ Formerly UNESCO Assistant Director-General for Education, 2007-09.

many middle income countries and many of these are also paying OECD for technical advice and analyses of their education systems. For the great bulk of ministers from non-OECD countries in the south, however, you have no one place to turn. You might be able to get information and help on early grade reading and on randomized trials of education interventions from the World Bank. You might be able to get loans to develop your higher education system from the World Bank and the African, Asian and Inter-American Development Banks. You might be able to get support for early childhood programs and child friendly schools from UNICEF. You might be able to get financial backing for basic education programs from USAID and the UK's DFID. You might be able to get your nationals enrolled in the higher education systems of France, Germany and Japan with financing from those governments. You might be able to get one individual a year trained in educational planning at UNESCO's International Institute for Educational Planning. You would be invited to several UNESCO education conferences each year.

All this would undoubtedly benefit you but you would be worried. You would not be sure how objective was the advice you were getting and what strings, visible and invisible, were attached to financial support. You would be concerned at the amount of your time you had to spend on international meetings and with the numerous aid and other agencies. You would wish that there was an objective source of knowledge and advice available to you, while still permitting you and your government to make sovereign decisions about your country's education system. You would wish, indeed, that there was a United Nations agency devoted to education.

There is such an agency, of course, the United Nations Educational, Scientific and Cultural Organization, UNESCO. But it has two big problems. The first is that it is not able to deliver the statistical, information and advisory services – the public goods in education – that you want because it has very limited financial resources for education and an education staff of very mixed quality. And it has been slowly deteriorating since the 1970s. As a result other agencies have taken on some of the functions that UNESCO should perform, with resulting confusion, inefficiencies and accusations of bias. The second, related problem is that it is not only the United Nations Education Agency but also handles Science, Social Science, Culture and Communications, a huge span of work unmatched by any other UN specialized agency that means that it is very difficult for its governance and management mechanisms to give appropriate attention to education.

The political issue

It is your country's fault that UNESCO does not get better and deliver to you the education services you want. Though UNESCO is one of the five major UN technical agencies, you have allowed it to become heavily politicized compared to FAO, IAEA, ILO, and WHO, politicized though these other specialized agencies themselves are. This politicization takes three principal forms: a focus in UNESCO's Executive Board and General Conference on North-South political issues rather than on the organization's core

functions, an excessive effort by member states to have their nationals lead and be hired by the organization, and a greater interest in the physical location of UNESCO's offices, institutes, staff and affiliates such as schools and UNESCO chairs than in their work and performance. Let us consider each in turn.

Issue politicization. Vast amounts of time are spent by UNESCO's Board, which meets twice a year, and General Conference, which meets every two years, on issues that have little to do with UNESCO and certainly not much to do with education, even though education is the single largest of UNESCO's sectors and even though most member states think that it is right that education be the largest sector. Two particular examples are the Arab-Israeli dispute, which has raised its head in various ways in recent years, including through the issues of Jerusalem's cultural heritage and of holocaust education, both bitterly and endlessly debated. Even within education, much time is spent on irrelevant debates – during the 2009 World Conference on Higher Education, for example, a key topic of discussion was that “higher education is a public good”, a position insisted upon by most Latin American states even though it is evident to anyone knowledgeable about public goods that higher education has elements of both being a public good and being a private good. More broadly, UNESCO, with its one country one vote system, is a forum in which the South can assert itself in ways it cannot in the UN Security Council or in the Bretton Woods institutions. In theory, UNESCO is no more a forum for this than is the UN General Assembly or other UN agencies; in practice, UNESCO's particular set of sectors, especially culture and communications, make it more vulnerable to such political posturing and assertion.

Employment politicization. It is right and proper that member states should want to see their nationals leading and on the staffs of UN and other international organizations. At UNESCO, however, this has gone too far, with enormous pressures to appoint inappropriate staff with inadequate qualifications and, above all, no way to change staff that do not perform well. This starts at the top, of course, with the election rather than the appointment of the Director-General. It is, I think, no accident that both the current and the former Director-General were diplomats – both enormously talented but neither a sectoral expert - prior to their appointment; their country's greatest concern was to secure the position and not necessarily to propose a candidate well-versed in technical knowledge of at least some of UNESCO's key sectors. Deals involving staffing and the location of offices are said to be done as part of the politicking of the election campaigns.

Below the level of the Director-General, there is enormous political pressure from member states and their delegations about employing their nationals. While I was Assistant Director-General for Education from 2007-09, this was by far the most common topic raised by delegation heads in their meetings and phone calls with me. Every short list had to have regional and gender balance, and much time was thus spent interviewing candidates who were barely qualified and who had little chance of succeeding in their employment applications.

There are three other aspects of employment associated with UNESCO that have

received insufficient attention. First, UNESCO is located in Paris, and is the only major UN agency in that city. Other UN agencies are concentrated in such places as New York, Geneva, Vienna and Nairobi, meaning that member state delegations typically handle a range of agencies and sometimes also bilateral relations. At UNESCO, by contrast, except for a few high income countries which combine their UNESCO and their OECD representation, most member state delegations are devoted solely to UNESCO, with all the incentives for their delegates to justify their existence (and hence their own employment) through frequent interactions with the secretariat on matters of national interest, above all employment.

Second, as UNESCO's real budget has declined over the years, the share going to salaries has inevitably increased, reducing the funds available for essential non-staff expenditures. It is very difficult to adjust this balance when there is so much pressure from member states to provide employment for their nationals.

Third, within countries, UNESCO has its unique system of national commissions, funded by member states, but usually with several employees per country. An objective of many of the staff members of these commissions is to move to work directly for UNESCO. Again, there is little incentive for them to take a harsh look at the business realities that affect the organization as a whole.

Location politicization. UNESCO has over 50 offices in member states, mainly in developing countries, and the majority have at least one education staff member, by definition too limited a staffing to provide any critical mass of support to the host government. In addition, for education specifically, there are four regional bureaux (Bangkok, Beirut, Dakar and Santiago) and nine centers and Category I institutes² (in Addis Ababa, Bonn, Bucharest, Caracas, Delhi, Geneva, Hamburg, Moscow and Paris). None of these offices or institutes has a sufficient budget to operate effectively, though some institutes, notably IIEP, have managed to attract significant extrabudgetary funding to maintain their programs, even if not in a sustainable way. If UNESCO were a private company, it would close most of these offices and institutes down, consolidating the good programs into the regular program and eliminating those that are mainly symbolic or (again) providing some jobs. But UNESCO is not a private company and cannot adjust to its budgetary realities in a realistic way. Never did this become more apparent than during 2009 with the parallel attempts to close the centre in Bucharest and to open an institute in Delhi. The first failed and the second succeeded, thereby further diluting UNESCO's budget.

CEPES is UNESCO's centre for higher education in central, eastern and southeastern Europe, established in 1972 during the Cold War. After the transition in these former communist countries, it helped them to modernize and adapt their higher education systems. It did an excellent job both during and right after the Cold War but, twenty

² A Category I institute is one that receives direct UNESCO funding. A Category II institute is one that has a UNESCO "seal of approval" but is funded by the country in which it is located.

years after the Berlin Wall had fallen, it had no clear remaining function – its member state universities were well integrated into those of Europe and the centre of gravity of European higher education was now Brussels, not Bucharest. As an economy measure, the secretariat proposed closing CEPES and transferring some of its needed continuing functions to the Paris headquarters. The government of Romania mounted an enormous defense, despite its dire economic circumstances, offering to pay the bulk of the centre's costs so long as it could eventually be considered as a possible Category I institute. UNESCO management, Board and General Conference accepted this, none considering the irrelevance of the centre's substantive work program.

In early 2009, without any advance warning, the Government of India suddenly proposed the establishment of a new Category I Institute, the Mahatma Gandhi Institute of Education for Peace and Sustainable Development. India argued, very legitimately, that the bulk of the UNESCO education institutes were located in Europe and that there should be a higher proportion in developing countries; it also offered to finance the bulk of the Institute's costs in the first few years. UNESCO staff assessed the feasibility of the proposed institute in a highly politicized atmosphere under very hurried conditions but the result was predetermined from the start: the Institute was deemed feasible and its establishment was rushed to the General Conference which approved it without dissent. The longer term implications in terms of budget and program were never discussed.

The technical issues

Thus far, we have established that UNESCO does not respond well to the demands from its education ministry and minister clients but does respond to the broader political demands from its client member states. Indeed the latter is the major explanation of the former. But UNESCO's problems in providing global public goods in education go much further. There is no real agreement on its priorities, its governance is cumbersome and very demanding on the staff, its budget is inadequate, its staff are not all appropriate, and there is not an effective collaboration with its partners/competitors.

Priorities. The different member states do not agree on UNESCO's education priorities beyond a general consensus that Education for All is the most important of all of UNESCO's programs. Given the low total budget (see next section) this means that there is little funding available for other aspects of education. This in turn makes much of UNESCO's work relatively irrelevant outside the low income countries of Africa and South Asia that are still far from achieving the EFA goals. It has also meant that the intellectual leadership on education beyond basic education has slipped away from UNESCO towards particularly OECD and the World Bank.

Even within the agreed priority of Education for All, there is no agreement among member states about what should be the balance between UNESCO's knowledge activities and its direct country programs. While Assistant Director-General in 2009, I drove a successful process to focus resources for the 2010-11 biennium onto four key areas:

teachers, literacy, skills, and planning, all essential for achieving Education for All and all relatively neglected by other agencies such as UNICEF and the World Bank. Another key element of increased focus was to concentrate UNESCO's country support operations particularly on about 20 countries that were far from achieving the Education for All goals. This concentration of resources was necessary in order that UNESCO have some impact, but at the same time it will further weaken UNESCO's knowledge base in other key areas of basic education, such as science education, and its ability to provide advice and assistance to countries that have or will achieve the EFA goals.

Governance. UNESCO's General Conference meets for three weeks every two years, with many ministers attending for at least a week, and its 58-member Executive Board meets twice a year, each time for three weeks. These governance structures are not efficient and encourage long debates and much interference in managerial issues rather than providing the general guidance that is the normal role of governing bodies while leaving implementation to management. In addition, staff reporting requirements are excessive, such that as soon as one Executive Board session has finished, staff have to start preparing reports for the next Board, as these documents have to be translated and delivered many weeks in advance of the meetings. Even with these excessively heavy governance procedures, however, it is not clear why member states need permanent delegations in Paris – their roles are not very clear outside the Board and Conference sessions.

Budget. UNESCO's overall budget for the current 2010-11 biennium is \$653 million, or \$327 million per year³. Yet less than \$20 million per year is available for education activities.

A staggering 45 percent of the total UNESCO budget is spent on administration, leaving only \$359.5 million (55 percent) for programs. Education is the largest sector within this program budget, garnering \$118.5 million, or one third of the program budget. The budget for education is thus \$59 million a year, or only 18 percent of the organization's total budget. To this may be added approximately another \$50 million a year of extrabudgetary contributions, but these contributions cannot be relied upon for the long term and are also earmarked for particular purposes, many of which are not necessarily priorities. By contrast the total annual budget of WHO, in some ways the health equivalent of the UNESCO education sector, is \$4.9 billion, including extrabudgetary funding, or \$2,469 million per year, *over 20 times UNESCO's education budget*⁴. Even allowing for the difference in sectors and in functions, this contrast is striking. Moreover, the WHO budget has increased in real terms in each of the past four bienniums, while that of UNESCO has decreased.

Of UNESCO's \$59 million annual education regular budget, only about \$19 million is available for activities. Staff costs take up \$31 million and transfers to the institutes and

³ UNESCO, Approved Programme and Budget 2010-2011, 35C/5 Approved, 2010.

⁴ WHO, Draft Proposed Programme Budget 2010-2011, RC/2008/2, 2009.

centers, also used essentially for salaries, another \$9 million.

If major donors are asked to increase their contributions to UNESCO's education sector, their usual – and reasonable – response is to point to the low proportion of the total budget that is allocated to education and to suggest that they are reluctant to provide more for education until UNESCO itself does so by allocating funds towards education, especially from administration. Any possible increase in spending on education must therefore start with internal reallocations – in the current biennium, the education sector was the only one to avoid a real budget cut but little was done to reduce the overwhelming spending on administration in general.

Staff. UNESCO has many excellent education staff; it also has too many who are not of the world class caliber that the premier UN organization for education should be able to attract. Its mechanisms to deal with these staff are inadequate – there is no redundancy fund or retraining budget and few efforts are made to dismiss non-performers because of the long time-consuming appeals processes that managers know they will have to face.

Beyond the question of the intellectual quality of the individuals is the issue of their knowledge; most new recruitment in the last decade has been of member state nationals to serve as local staff in their own countries. This has been invaluable for UNESCO's own activities in these countries, providing essential local knowledge and contacts. But it has not at all contributed to the global transfer of knowledge about education that surely should be the major function of UNESCO's education sector. Nor does it permit UNESCO to play the role of lead agency for education in the country as that leadership cannot easily be conducted by nationals of the country – what is needed is experience elsewhere and in dealing with a broad range of actors and agencies.

Place in the Global Education Architecture. As noted, other agencies have taken on some areas that ought properly to be UNESCO's domain, reflecting UNESCO's slow decline. UNESCO does collaborate effectively with some of these other agencies on specific programs, e.g. with the World Bank and with OECD on higher education quality and qualifications. But much of UNESCO's work does not take account of the work of other agencies; this is particularly pronounced at the country level, where UNESCO suffers from not being present in many countries on a permanent basis and, more recently, from an overemphasis on “Delivering as One” within the UN system.

“Delivering as One” makes sense in theory. There are numerous UN agencies with overlapping functions and they should coordinate better to deliver services more effectively. This has led to two major problems in the education sector, however. First, the emphasis within the UN is now on activities and projects, not on the delivery of advice and knowledge, which is and should be UNESCO's priority – so UNESCO does not do well in the competition at country level for UN funding unless it does such things as school construction or direct teacher training, which should not be part of its mandate. Second, the focus on improved collaboration within the UN system diverts UNESCO education staff away from collaboration with other non-UN agencies that may be much more important in terms of external support for the education sector in a particular

country, agencies like multilateral and bilateral donors.

The Way Forward

Given the major problems that UNESCO's education sector faces, it might be thought that reform is impossible. This is not so -- and there are examples of successful reform in specific areas. Take, for instance, the UNESCO Institute for Statistics. UNESCO used to have an excellent capacity in its Office of Statistics and that Office's Division on Education Statistics was the source to which everyone went for comparative education data. By the 1990s, however, this capacity had deteriorated very significantly and its data were neither reliable nor produced in a timely manner. A successful campaign was mounted, mainly from outside UNESCO, to re-establish the capacity by setting up an autonomous statistical institute within UNESCO and donors made earmarked extrabudgetary contributions for this purpose. Today the UNESCO Institute for Statistics is again widely respected, although its own budgetary limitations restrict the scope, but not the quality, of its work – and it also has to devote significant resources to statistics in UNESCO's areas of competence other than education.

Another example is the establishment of the Education for All Global Monitoring Report⁵. At the Dakar World Education Forum that adopted the current version of the EFA goals it was agreed that UNESCO would set up a monitoring report. But it did not do so initially and eventually external pressure and finance, principally from the United Kingdom's Department for International Development, led to a Report Team being established at UNESCO but which operated independently of the UNESCO Education Sector. It is striking that the two most successful recent global public goods in education that have been associated with UNESCO have both been achieved largely through external pressure and finance and are at least semi-autonomous of UNESCO.

Reform is also possible because there is still enormous good will towards UNESCO. Most developing countries are proud to belong to UNESCO and look to it for guidance, guidance that it is unfortunately frequently unable to provide. UNESCO still has convening power; when it calls a conference, member states participate and very often at the highest, ministerial level. Its multilateral competitors such as the OECD, UNICEF and the World Bank all clearly wish to see a stronger, not a weaker, UNESCO education sector, even if that may reduce their individual standing. Precisely because these competitors exist, however, which they did not during the sector's heydays of the 1960s and 1970s, any reform must involve the global education architecture and cannot be simply to restore the education sector of the past. UNESCO spends too much energy defending its education "mandate" and not sufficient adapting to the reality of the current situation. Similarly most bilaterals wish to see a stronger UNESCO as, with a few

⁵ Before becoming Assistant Director-General for Education, I was the second Director of the Global Monitoring Report.

exceptions such as USAID, they reduce their numbers of specialized education staff.

Seven ingredients are essential for reform: awareness, leadership, governance, finance, employment rules, relevance and a revised global architecture. This may seem an odd mixture of process and content but it is essential that all elements of this package be put in place if reform is to succeed.

Awareness. Neither the members of UNESCO's governing bodies nor its own management and staff are fully aware of the external reality concerning UNESCO's education sector, largely reflecting UNESCO's many purposes, the lack of education expertise among member country delegations, and the lack of sufficient turnover of the staff. These key people simply don't realize how bad the situation is, because they are insufficiently exposed to external reality. Yet officials and ministers in their countries are very aware of the issues but somehow have not effectively communicated them through their delegations. Something needs to be done to wake them up and build a consensus that reform is needed, as happened with statistics a decade ago.

Leadership. It would probably be fair to say that no recent Director-General has tried to reform UNESCO's education sector. Several Assistant Director-Generals have tried, myself included, but we all have come to realize that effective reform means attacking UNESCO-wide issues and cannot simply be carried out within the education sector⁶. Major reforms did occur at UNESCO under the previous Director-General, very much to his credit, but they were more concerned to clean up its finances than to attack fundamental structural issues. For reform to occur, the Director-General must be aware of the need and must lead the process. It is still too early to tell if the current Director-General will do so.

Governance. Reform of the General Conference and of the Executive Board is undoubtedly needed but that is a much bigger subject than reforming UNESCO's education sector. Pending major governance reforms, it would be very useful to establish an Education Advisory Panel, consisting of a small number of ministers and acknowledged experts, all serving as individuals, to help guide the Board and management in reforming the education sector.

Finance. Given the inefficiencies in the overall UNESCO budget, it is not appropriate to suggest that an increase is needed until the present budget is used more effectively. Donors are right to suggest that the budget for education can be increased without increasing the overall budget. The inefficiencies in that budget stem largely from the excessive proportion devoted to administration. This spending on administration, like that on the program sectors, is largely on salaries of administrative staff. If it is ever to be curbed, a one-time injection of finance is surely needed in order to finance the departures of redundant employees. This cannot be done piecemeal but requires the departure of hundreds of staff, who are no longer needed but who are not necessarily poor performers – hence the need for an attractive redundancy package.

⁶ I know this from direct discussions with my three immediate predecessors.

Over the longer term, more funding is undoubtedly needed for UNESCO's education sector but, to repeat, there is no case for this until the present levels of spending are more effectively deployed.

Employment rules. At present, UNESCO staff, like other UN employees, are hired against "posts", established positions with particular responsibilities. This system is extremely inflexible; every job has to be permanently specified and staff cannot be promoted in place but must always apply for a vacant post to move up. Moreover, while nominally on two year appointments, staff in fact are appointed until retirement age. The post system needs to be abolished, replaced with a simple salary budget. Appointments need to be for longer than for two years, to provide reasonable job security, but for much less than life – fixed terms of 5 years are probably appropriate. This is more or less how some non-UN multilateral agencies, like the World Bank, now employ people. Such simple changes mean also major changes to the UN pension system which is not designed for the modern world where staff come and go from organizations.

Relevance. UNESCO must provide the public goods in education that its member states need and want. This means, in addition to statistics, knowledge about education derived from research and from the global sharing of experience. And it means knowledge about the education issues that are relevant to member states, and so cannot be limited to Education for All. It would be useful also to produce a few significant think pieces about the future of education, as was done over a decade ago with the Delors Report, in order to demonstrate UNESCO's intellectual engagement; and to consider more reports like the Education for All Global Monitoring Report, covering other aspects of education with the same quality of analysis. Finally, as an agency that does not itself provide financial but only technical aid, UNESCO could play a more significant role to improve global aid coordination in the education sector – as it has no self-interest, others could well turn to it for help in this area⁷.

Global Architecture. A key determinant of what UNESCO should do is what others do and should do. There is an urgent need to come to an agreement among particularly UNESCO, OECD, the World Bank and UNICEF on who does what, both in terms of knowledge management and also, critically, in terms of country level work. How should high income OECD countries be handled? What is the role of UNESCO country offices in education? How should global education research be funded and managed? My own view is that UNESCO might gain from disengaging from direct country level activities while focusing on global and regional education knowledge generation and management. However, this needs to be discussed and decided among all relevant parties.

Conclusion

Reform of UNESCO's education sector is needed, in order that it can provide the

⁷ This is a separate point from the important one made by Birger Fredriksen in his overview article that an improved supply of public goods in education would also benefit country-specific education aid, because of the synergy between country-specific and global public good functions.

public goods that its member states need and want. This reform will not be easy but it is perfectly possible. The key first step is to reform what is done within the existing budget envelope and to come to agreement with other key agencies on the delineation of responsibilities. Both will build credibility and permit a future expansion in budget and activities. They can only be done, however, by attacking a series of UNESCO-wide issues and so will require active leadership from top UNESCO management in order to re-professionalize many aspects of the sector's work that have become too politicized. It will also require a one-time injection of extra finance in order to finance reforms, especially redundancies and retraining.

Do the Millennium Development Goals Restrict the Provision of Global Public Goods through the Education Sector?

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Abstract

Education can strengthen or hinder the provision of global public goods including political, environmental and demographic stability. This fact is not explicit in the Millennium Development Goals (MDGs) which largely determine the international development agenda and, for education, focus only on primary education and gender equity. Global public goods are seen in resulting programs, not as education sector objectives, but as fortuitous externalities. Are the MDGs distorting the sector's ability to achieve global public goods? Are they enhancing their achievement? Or are they largely irrelevant in terms of actual outcomes? This article addresses these questions by analyzing the relationships between education, global public goods and the MDGs, looking also at underlying political and managerial issues. The findings suggest a need to be less concerned about the MDGs and more about these underlying issues.

1. Introduction

Education is a basic human right, enshrined in the Universal Declaration of Human Rights (United Nations 1948). But, as we shall see, it may not fit the definition of a global public good. The Declaration sets universal education in the context of its intended social/political impact: 'strengthening of respect for human rights and fundamental freedoms ... understanding, tolerance and friendship among all nations, racial or religious groups ... maintenance of peace'. And education can help secure the global public goods of political, environmental and demographic stability. But this depends on the kind of education and its management. Education can also exacerbate political instability and environmental degradation and encourage an increase in population growth.

The World Declaration on Education for All (EFA) agreed at Jomtien in 1990 (UNESCO 1990) notes that: '... the world faces daunting problems: notably mounting debt burdens, the threat of economic stagnation and decline, rapid population growth, widening economic disparities among and within nations, war, occupation, civil strife, violent crime, the preventable deaths of millions of children and widespread environmental degradation. These problems constrain efforts to meet basic learning needs, while the lack of basic education among a significant proportion of the population prevents societies from addressing such problems with strength and purpose.' There is an 'understanding that education can help ensure a safer, healthier, more prosperous

and environmentally sound World'. The Declaration sets the focus on basic education, signaling a paradigm shift for the international development community towards this level of education.

The impact of Jomtien was reinforced a decade later in Dakar by agreement on six EFA Goals (UNESCO 2000). Yet more significant was the modified transmission of two of these goals at the United Nations Millennium Summit (United Nations 2000) to become the second and third Millennium Development Goals (MDGs): universal completion of primary schooling and gender equity at all levels of education. MDGs now dominate the international development agenda globally and as a country programme allocation and monitoring tool. The latter typically involves just the first indicator for each MDG, e.g. primary education net enrolment rate (NER) for MDG 2. Jolly et al (2005) comment that 'although the value of goal setting is often questioned, the record of achievement is more positive; goals have provided a spur to national policies and a benchmark for success or failure'. In contrast, Vandemoortele (2009) notes that the MDGs were originally intended, not as national targets, but for global poverty monitoring. 'Their misinterpretation .. begs the question whether Africa is missing the targets or whether the world is missing the point.....The very idea that the region is to achieve the MDGs is utopian.'

No rationale is given for the MDG focus on universal primary education (UPE) and gender equity. And as noted by Bray (1986), the link between UPE and wider development is not straightforward. Bray recommended 'more critical appraisal of objectives, of the mechanisms through which they can be achieved, and of overall priorities.' The MDGs have been criticized as merely subtracting from the original EFA goals (e.g. Ahmed 2004). Indeed, the Board of the EFA Fast-track Initiative (FTI), 'a global partnership between donors and developing countries to speed the progress towards the Millennium Development Goal of universal primary education [UPE] by 2015' (FTI 2010 a), recently decided that all EFA goals will in future be eligible for its financial support, including life-long learning, adult literacy and improving the quality of education, with a continuing emphasis on basic education (FTI 2010b).

Does this matter? Are the MDGs beneficial or more likely to reduce education's impact on such global public goods as political, environmental and demographic stability? Or do they and other international development frameworks have little real impact on outcomes?

This article addresses these questions as follows. Section 2 identifies, from a number of education sector elements, those necessary to secure political, environmental and demographic stability. Section 3 compares these with the elements prioritized in the MDG and EFA frameworks. The elements comprise:

- (a) access to the following levels of education: pre-primary; primary (or UPE); secondary; tertiary (or higher); technical and vocational education and training (TVET); adult education;

- (b) the following issues in relation to all levels of education: quality; curriculum; management; budget.

References to these are underlined in sections 2 and 3 as they occur. Thus the underlined words in all quotations are the present author's emphasis and not part of the original quotation. This division is chosen purely on the basis of this analysis and does not imply any disregard for other aspects of education that do not assist the comparison.

Section 4 then compares the results of this analysis with actual educational outcomes in sub-Saharan Africa (SSA) and with the likely impact of practical and political factors. Section 5 looks at the particular case of education and population growth in the Yemen.

The final section 6 uses the findings of the previous sections to assess whether the impact of the MDGs is likely to have been positive, negative, or of little effect either way.

2. Education and global public goods

Public goods and global public goods

Public goods are defined as being 'non rival - consumption by one person does not reduce the supply available for others - and non excludable - people cannot be prevented from consuming them ...Providing such goods ...is a function of international organizations.' (World Bank 2004a).

Global public goods are those which 'tend towards universality in the sense that they benefit all countries, population groups and generations' (Kaul et al 1999). According to Anand (2004), a global public good needs to: '(i) cover more than one group of countries; (ii) benefit not only a broad spectrum of countries but also a broad spectrum of the global population; (iii) meet the needs of the present generations without jeopardizing those of the future generations.'

Education may not be a public good according to the above definition, even though it may be provided by and benefit the public. Examples of the arguments for and against are those of Labaree 2000 and Pisciotta 1984 respectively. The amount of education a person receives from freely available sources does not deprive others, and such sources are in principle available to all. However, it is easy to exclude a child from school, especially where the school has reached its capacity or is a competitive-entry or fee-paying school. Moreover, an increase in the number of pupils in a class reduces the attention that the teacher can give to each – one person's consumption reduces that available for another.

On the other hand, many desired outcomes of what might be termed a 'good education' are indisputably public goods. Examples of these are considered below, along with their dependence on the nature of the education provided.

Political, environmental and demographic stability as examples of global public goods

Governments value education's ability to help economically, socially and culturally

disparate groups live peacefully together and contribute to the common good. Such political stability is non-rival, non-excludable and benefits all countries, populations and generations. Political instability can lead to mass migration, disruption in international trade, the spread of terrorism, and political instability and violent conflict in other states. Political stability is thus a global public good.

Environmental stability – the absence of environmental degradation – is also a global public good in terms of the above definitions. It is non-rival, non-excludable and the global impact of localized environmental degradation is evident in, for example, global warming, dwindling international rivers and lakes, and shrinking fish stocks in international waters.

Most parts of SSA and West Asia are experiencing demographic instability in terms of rapidly increasing populations and a decrease in the average age of the population. It is likely to be several decades before these regions approach the final, stable phase of the demographic cycle in which the birth rate has fallen to balance the death rate. Demographic stability is a global public good in terms of the above definitions. Its absence exacerbates competition for national and global resources, political instability and international conflict over resources, national levels of poverty with international aid and trade implications, environmental degradation and large scale migration.

Education and political stability

At least two countries, Sierra Leone and Morocco, have suffered violent political instability from a failure to provide sufficient access to primary education to deprived minority groups (Sommers 2009, El Ahmadi 2009). On the positive side, primary schools provide a physical governmental presence throughout a country, a direct link between a government and its people encouraging the allegiance of the local population. During and after armed conflict, schools can provide a haven of normality and local stability.

The school curriculum is also important for national stability, as recognized in article 26 of the Human Rights Charter: ‘Education ... shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace.’ (United Nations 1948) Without an assured common curriculum in line with the Human Rights Declaration, separate education can build barriers and lack of understanding between different social levels, ethnic groups and sects. Bias, or just accusations of bias, in the curriculum has exacerbate conflicts and division; the issue of textbook bias provided the justification for breaking off peace talks in the Middle East (Brown 2002). Education can pass on the best of national and community culture, international awareness, and centuries of global human experience and achievement. Education can help people think for themselves and not be pawns of indoctrinators and extremists. This is particularly true at secondary level and above. The creation of Imam Hatip secondary schools in Turkey, Islam-oriented but with a full curriculum in line with the Human Rights Declaration, is an example of a

government education initiative to counter sectarian extremism (IslamOnline 2010).

Accountable management is also important in avoiding political instability (Swift 2009). Poor government oversight of schools in the hands of political extremists spreads indoctrination in violent sectarianism and provides recruitment bases for terrorists. Systems of accountability need to ensure the local community have an adequate voice and sense of ownership; problems here may have contributed to violence in Nigeria [Bauchi 2009]. Good management of schools also ensures the intended curriculum is taught effectively.

Young people who are illiterate and unemployed can contribute to political instability by adding to any local violent eruptions and supporting better educated political extremists. Adult education can provide them with the skills needed to contribute constructively to society. Unemployed school-leavers and university graduates can also be a source of instability. Whilst the level of employment depends on job creation it also depends on the knowledge and skills of job applicant and potential entrepreneurs. The quality of education at all levels but particularly secondary level is thus important, as is an adequate provision of good quality TVET.

Education and environmental stability

Whilst as early as 1762, Rousseau preferred young children to learn from the environment than from books (Rousseau 1762), environmental education as such began in the 1960s and 1970s, notably around the 1972 Stockholm UN Conference on the Environment (United Nations 1972) that created the United Nations Environmental Program. The ensuing 1975 Belgrade Charter defined environmental education as ‘comprehensive lifelong learning ... to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones linked to environmental issues.’ (UNESCO 1975) The major emphasis is on the curriculum, whether environmental education is envisaged as an additional area or just more relevant teaching of traditional subject matter (Swift 1983). The Belgrade Charter definition also presupposes UPE and adult education sufficient to engage the ‘world population’ in ‘lifelong learning’.

To provide the engineers, architects, geologists, accountants needed for a country to manage and sustain its environment, there has to be an adequate provision of good quality education at secondary and tertiary level and TVET skills.

What happens in the classroom is not the only impact of schools on the environment. Most donor-funded school construction programs require environmental screening to ensure that school design and management are conducive to the environment. This has budgetary implications in terms of, for example, safe water supplies and measures for waste disposal. A school that is well-maintained, with efficient supplies of water and energy and good systems and management of waste disposal, will help engender these

concepts amongst the students, especially if engaged in school maintenance.

Education and demographic stability

Education's usually portrayed role in relation to rapid population growth is that of a victim. Such growth hinders the sector's ability to maintain, let alone increase, enrolment rates, outstrips the ability of the economy to maintain reasonable per-student expenditures, and reduces the likelihood of students gaining employment at the end of the process. Yet education can also play an active role in reducing fertility and thereby population growth. In most situations, there is a negative correlation between a mother's level of education (up to secondary level) and/or level of literacy and the net fertility rate (Cochrane 1979). The correlation is greatest for secondary education. A potential mother's education affects biological supply (e.g. from age of marriage, child survival), demand for children (e.g. from changes in the family's economy), and fertility control (e.g. knowledge of, access to and attitudes towards contraceptives). The first of these requires girls to remain in school long enough for this to take effect. The mother's family economy depends on the quality of her education in enabling her to find employment after school. Fertility control depends on these issues being part of the curriculum.

The ability to keep girls from poor, conservative communities in school long enough for this to occur is helped by including scholarships and other incentives in the budget. The quality of education is also an incentive to parents. Retaining girls in education is also helped by providing a gender-sensitive curriculum and by designing and managing schools to provide a 'girl friendly' school environment. One element of this is the provision of adequate sanitary facilities and sanitary pads. A school that shows no respect for girls and women in its teaching or practices may lead in due course to an increase the birth rate, whether from teenage pregnancies, girls leaving school for early marriage, or a lack of partnership in future family planning. A schoolgirl's pregnancy is not just likely to deprive her of further education, but to discourage other parents from sending their daughters to school.

Adult education linked to family planning or leading to female employment can also reduce fertility, especially in poorer, conservative communities that tend to have the highest fertility rates. Moreover, adult literacy classes that include school-age girls and operate in an informal setting can provide an alternative entry into education for girls who were prevented from enrolling in primary education. In Egypt, girls from deprived neighborhoods have eventually reached university graduation after starting their education through adult literacy classes.

The 1994 Cairo International Conference on Population and Development (United Nations 1994) added a gender and population emphasis to the statement in the Declaration of human rights that 'everyone has the right to education' which should be designed [via the curriculum] 'to strengthen respect for human rights and fundamental freedoms, including those relating to population and development.' 'Beyond the achievement of the

goal of universal primary education in all countries before the year 2015, all countries are urged to ensure the widest and earliest possible access by girls and women to secondary and higher levels of education, as well as to vocational education and technical training, bearing in mind the need to improve the quality and relevance of that education.'

3. Education and International Development Frameworks

Educational emphases of the International Development Frameworks

The Basic Human Rights (HR) statement that 'everyone has a right to education' (United Nations 1948) is much more than UPE, even though it emphasizes that elementary education shall be free (with implications for the budget) and compulsory. The Declaration requires that 'technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit.' The curriculum (by implication) 'shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace.' Education governance/management should be on the basis that 'parents have a prior right to choose the kind of education that shall be given to their children.' (United Nations 1948) There is no specific reference to pre-primary, adult or secondary education - or to gender equity in Article 26 referring to education, though this is covered in Article 2.

The Dakar EFA goals (UNESCO 2000) are, in summarized form, as follows:

1. Expanded and more equitable early childhood care and education;
2. Compulsory, free, good quality primary education for all by 2015 (again with implications for the budget);
3. Equitable access to youth and adult life skills programs;
4. Adult literacy halved by 2015, especially for women;
5. Gender equity at primary and secondary by 2005, throughout by 2015.
6. Improved quality of education, especially literacy, numeracy, life skills (which are taken in the UNESCO Global Monitoring Reports to include TVET).

The second MDG has the following target: 'Ensure that all boys and girls complete a full course of primary schooling' (UNDP 2010). The indicators are based on this: NER, proportion of students reaching final grade, but also the adult literacy rate. However, this is an indicator for primary completion and does not imply in itself any targeting of adult education, nor of educational quality. Both the target and first indicator of the gender MDG equate to the EFA gender equity goal. The second and third indicators refer, essentially, to gender equity in employment and politics. The implication may be that this will result from greater equity in education, but this is not made explicit.

The EFA Fast Track Initiative (FTI), although until recently based only on the education MDG, also provides an international development framework of its own in terms of a set of indicative budgetary norms (FTI 2006).

Comparison of international framework emphases with education for global public goods

Table 1 compares the education emphases of the above international development frameworks with those shown in section 2 to be required for the global public goods (GPGs) of political, environmental and demographic stability.

Table 1. Education emphases of International Development Frameworks and those required for political, environmental and demographic stability

Education Priorities	In international frameworks				Required to stabilise the:		
	HR	EFA	MDGs	FTI	State	Environment	Population
(a) Levels of education							
Pre-primary		+					
Primary	+	+	+	+	+	+	+
Secondary					+	+	+
Tertiary	+					+	+
TVET	+	+			+	+	+
Adult		+			+	+	+
(b) Issues							
Gender equity	+	+	+	+			+
Quality		+			+	+	+
Curriculum	+				+	+	+
Management					+	+	+
Budget	+	+		+		+	+

The analysis of prioritized levels of education provides examples of unanimity and strong divergence. UPE is common to all the frameworks and to a priority for all three GPGs. On the negative side, none of the international frameworks emphasize secondary education (other than in terms of gender equity) yet this is also key to all three GPGs. Adult education and TVET are vital to all three GPGs, yet neither is referred to in the MDGs. The Human Rights Declaration is the only framework highlighting tertiary education which is important for two of the GPGs. The EFA emphasis on pre-school education is not a priority for the three GPGs considered in this article but is important for other GPGs.

The analysis of priority issues shows similar divergence. Those key to all three GPGs are the quality of provision, the curriculum, and education management. Yet only the EFA makes specific reference to the first of these, only the HR Declaration to the curriculum, and none refer to educational management.

Whilst this does not purport to be an in-depth analysis, it does highlight differences

between the international frameworks and especially between these frameworks and the kind of education needed to achieve some important global public goods.

4. Assessing the impact of International Development Frameworks on education

(a) Is education development in sub-Saharan Africa in line with international goals?

Whilst it is not possible to identify a clear counterfactual for these global goals, we can compare outcomes in SSA with less developed countries (LDCs) as a whole and over the period of the MDGs and EFA goals. The logic here is that Africa has been the main focus of attention in regard to these goals, being the largest per-capita recipient of donor funds for this sector. It also has a high population growth and significant political and environmental instability. The purpose of the next section is to look at a specific example of the application of these frameworks in West Asia.

Table 2 examines a number of levels of education and gender equity using gross and net enrolment rates (GER and NER), gross intake rates to year 1 of primary school (GIR) and other data from the 2010 MDG and EFA Global Monitoring Reports (World Bank 2010a), UNESCO 2010) and UNESCO Institute of Statistics Database [USIS 2010]. Regional data for SSA is limited, especially prior to 1991, but this is a useful baseline for the impact of EFA and the MDGs.

Table 2. Education enrolments in sub-Saharan Africa, relative growth and comparison with developing country averages. (- means no available data)

Level or issue	Indicator	2007 value		Average per annum growth in value:			
		value	As fraction of LDC average	1991-07	1991-99	1999-03	2003-08
Pre-primary	GER	15%	42%	5.0	-	-	-
Primary	GIR	116%	99%	2.1	1.1	3.5	2.8
	GER	99%	99%	1.6	0.8	2.5	2.3
	NER	73%	85%	2.1	-	-	-
	Completion	60%	71%	0.6	-	-	-
Secondary	GER	34%	56%	0.7	-	-	-
Tertiary	GER	6%	33%	0.2	-	-	-
TVET	% of school age group	2%	33%	-	-	-	-
Gender equity (primary+ secondary)	Female % of male enrolment	86%	91%	0.4	-	-	-

The values for primary education and gender equity have the highest SSA percentages in comparison with the LDC. Apart from the huge increase in the tiny pre-primary enrolments, primary education enrolment, intake and gender equity rates – but not so much completion rates - also show the largest increases since 1991, accelerating in the late 1990s. Secondary and tertiary education have increased at a lower rate. This is compatible with a large MDG impact and a high EFA impact on pre-primary education though not on TVET.

The above process cannot be used for the impact of EFA on adult education. However, the 2010 EFA Global Monitoring Report (p.1) makes the global comment that: ‘Literacy remains among the most neglected of all education goals’ with 38% of adults illiterate in SSA compared with 20% in LDCs as a whole (p.95). This also reflects the quality of education. The EFA report notes that: ‘In some countries in sub-Saharan Africa, young adults with five years of education had a 40% probability of being illiterate’ whilst ‘there is a shortage of 1.2 million primary teachers in sub-Saharan Africa’. (UNESCO 2010)

It is not possible from these sources to assess the curriculum: it is not mentioned in the World Bank 2010 GMR and only briefly in the EFA 2010 GMR. The poor state of education management and governance and the need for improvement to reach the marginalized were a major feature of the EFA 2009 GMR (UNESCO 2009).

There is little SSA regional data on education budgets, or for most countries in the region. However, much of the information from the Global Monitoring Reports and UNESCO database that there is suggests adherence with the FTI table of global norms, but with large variations:

- Public recurrent resources for education: 2.8 to 3.6% of Gross Domestic Product (GDP); around 20% of domestically generated revenues (but Eritrea 2% of GDP, Congo 9% revenues, Kenya 7% of GDP and 35% of revenues);
- Primary education 42 to 64% of total expenditure (but Congo 27% and Niger 70%).

However, two of the areas most divergent from the FTI guidelines are very low non-salary recurrent expenditure and a high proportion of pupils in private education.

Budgets in SSA for areas not in the FTI guidelines are far from international norms. Adult and pre-primary education receive only a fraction of the global average whilst per-pupil expenditures for secondary and tertiary education are greatly in excess of the global means as a fraction of per capita GDP.

Overall, education outcomes match the MDG emphasis on primary access and gender equity more than the other EFA goals such as adult education and the quality of education. Areas not prioritized by either EFA or the MDGs, notably tertiary education and TVET, show the least progress. But is this just the result of promoting the MDGs and EFA goals?

(b) Should we expect the MDGs to have high impact?

The MDG goals of UPE and gender-equity have much higher political commitment from the World Bank and other major donors than the EFA goals. Whilst many UN conferences are major political events, the resulting commitments tend to be vague and their implementation difficult to measure, and there is little in-country lobbying or motivation. In contrast, the MDGs are precise and measurable and are often the main criteria used to justify large loans and grants, especially major budgetary support given that they form one of the bases for agreement of poverty reduction strategy papers. FTI, until this year linked to the MDGs rather than the full EFA goals, is important in (a) being a major global and in-country forum between education ministries and the major aid agencies (b) providing access to large sums of flexible funding.

On the other hand, progress against UPE isn't just a result of the MDGs. UPE was on the political agenda in many countries long before Jomtien let alone the Millennium Summit. And many countries in SSA made tremendous gains in primary enrolment rates long before Jomtien. And comparing the proportion of a country's budget spent on primary education (USIS 2010) with the country's aid dependency (World Bank 2010b) there is not the correlation we might expect if MDGs were playing a key role. Progress on gender-equity at primary and secondary education may be mainly the outcome of UPE policy and actions rather than the impact of MDG3, especially given the relative lack of emphasis and progress on reaching equity at other levels of education.

(c) How are national political considerations likely to affect education priorities?

One might expect governments to focus on all aspects of education important for political stability. However, politicians at all levels tend to focus on immediate political priorities. Thus getting a school up and running to win over the local population is a higher priority than the quality of provision. Immediate measures to reduce unemployment, for example keeping high staffing levels in the public sector, are more politically important than improving secondary and technical and vocational education to meet future employment needs, especially given the low esteem of TVET as a second class education. Discovering and clamping down on present subversive activity in the education sector is more politically important than developing peace building skills and attitudes amongst schoolchildren. Avoiding offence to the elite by maintaining high per-student subsidies for secondary and tertiary level education is more important than converting the subsidies into scholarships for girls from low income families. There is little political incentive to prioritise gender equity at higher levels of education and even less for adult education. It can be politically useful to provide the bones of a system to claim that something is being done to combat illiteracy, especially if this can then be used to immediately reduce graduate unemployment. But getting more efficient adult literacy and adult skills programs are unlikely to bring large political benefits commensurate with the effort.

(d) How are management issues likely to affect education priorities?

Financial management constraints distort expenditures, notably in the bias towards salaries and infrastructure and against quality, equity and efficiency. Salary payments are usually the most difficult area to cut when adjusting actual allocations to marry over-ambitious budgets with immediately available funds. Contracts are involved and teachers' unions are often powerful entities. And many capital allocations linked to primary school building programs and discrete projects are locked into agreements with development banks and donors. It is much easier to cut non-salary running costs, even though this is to the detriment of quality (e.g. inadequate in-service teacher training and textbooks), efficiency (e.g. no fuel for the inspectorate) and equity (e.g. no scholarships and similar incentives). The tendency of ministries of finance to cut not-salary recurrent expenditures deters budgetary reform toward balanced, program-based budgeting by sector ministries. This may explain the deviations from FTI guidelines for salaries and capital expenditures. The fact that this built-in bias does not affect the total spent on education or proportional allocations to primary education may explain greater adherence to FTI guidelines in these areas.

This salary/infrastructure bias may also explain why TVET tends to be highly capital intensive, supply-driven through schools and colleges, with operating costs covering little more than salaries to the detriment of quality and relevance. In contrast, effective skills training requires high non-salary running costs for materials and for instructor training costs, both pedagogical training for instructors with practical skills, or skills upgrading to keep abreast of technology and the changing labor market. Efficient TVET also requires a high degree of collaboration between government staff and institutions on the one hand and industry and commerce on the other. This is expensive, not least in time and training.

Low running costs also reduce morale and accountability. Teachers who are not inspected become isolated and disillusioned, and it is unsurprising that many of them fail even to turn up to teach for much of the time.

Physical and financial management concerns hinder the expansion of government secondary and tertiary education. In many countries, major expansion is only feasible with a significant reduction in per-student subsidies and focusing some of the subsidies on student scholarships, especially for girls from disadvantaged families and communities, and on student loans. The management difficulties and likely loss of funds constrain such reforms. Expansion is often achieved more through the private sector, but with insufficient funding and development of accountability measures to ensure quality and equity.

Financial and other management issues also constrain the growth and quality of adult education. This tends to involve a remote, highly dispersed clientele with difficult communications and training and oversight practicalities, including pedagogical and financial and other management skills at the front line. Adult education requires a high degree of coordination between government and civil society, inter-ministry collaboration, and coordination between local, sub-national and national government. In practice, the management system tends to absorb the overwhelming bulk of available funds, with little

left for effective teaching. A poor record of success in adult education deters any increased allocation.

The curriculum at all levels is problematic for a number of reasons. Most curricula are over-crowded, especially for double shift and other schools with low pupil-teacher contact time. There is no time to include an adequate emphasis on civics, environmental education and family-life education. And even if there were, there is little chance of provided adequate training to teach these areas effectively. This also seems a low priority when pupils are failing to gain even a basic level of literacy and numeracy. Moreover, the curriculum is a sensitive area, especially sex or family-life education and any linkage with politics or efforts to encourage sectarian tolerance and understanding.

Thus there is a strong management bias against reforms in areas other than universal primary access and gender equity. This is reinforced by political bias in favor of the groups that have political voice. For example, illiterate women in rural areas have little political voice and are unlikely to bring down governments; disaffected elites and out-of-school urban youths are a political threat.

It may be these management and political considerations rather than the MDGs 2 and 3 that have resulted in progress here but not in other EFA goals or areas needed to achieve global public goods.

5. Case study: education strategies and population growth in the Yemen

Yemen is an example of a non-African country with significant problems in regard to political, environmental and demographic stability. The population growth rate is 2.7% with a total fertility rate of 4.8 children per woman (CIA 2010). Adult literacy is low: 71% male and 30% female. Yemen receives a modest level of donor assistance (\$16 per capita aid dependency, 2.5% of GNI (World Bank 2010b) but with an education bias in donor funding and with government expenditure on education at 5.2% of GDP (USIS 2010). Enrolments reflect an MDG UPE emphasis but with some of the highest gender disparities in the world especially at secondary level. GER for all students and for female students (in parentheses) are as follows: pre-primary 1% (1%); primary 94% (76%); secondary 51% (37%). But female enrolments in grade 1 increased significantly over the decade 1999-2008: 8.3% compared with 5.9% for both sexes. Primary enrolment as a whole grew by 4.7% per annum over the decade, secondary by 6% p.a. and tertiary by 5% p.a. (USIS 2010)

Yemen's high population growth rate was identified in Chapter 2 of the 2003 Poverty Reduction Strategy Paper (PRSP) as first of the four major development challenges, followed by water, human resources and governance institutions (MPIC-Yemen 2006). Low levels of female education are seen as contributing to population growth: 'relevant surveys show the significantly strong relationship between educational levels of women and the fertility rate, since the actual fertility rate reaches 6.9 among illiterate women as compared to 3.2 among mothers who completed basic education' (page 28). Deficiencies

are highlighted (page 36) in adult education and TVET: ‘one technical graduate for every 17 university graduates, whereas the proportion should be 4 technical graduates per university graduate.’ But neither the ensuing education strategy nor the poverty strategy goals mention the education fertility link. The remainder of the PRSP focuses strongly on the MDGs. Yet the education sector goals comprise more than the MDG emphasis: increased and more equitable enrolment in basic education (which now includes adult education), increased access to TVET, and expanded, modernized university education.

Yemen’s Population Action Plan (PAP) is based on the National Population Strategy (2001-2005) but neither are readily accessible (Madsen 2010). A 2004 report on PAP design and costing recommends a largely awareness-raising education component (World Bank 2004b).

One education program likely to reduce female fertility is the multi-partner Secondary Education Development and Girls Access Program. (World Bank 2008) Fertility reduction is not part of the project’s objectives and there is no mention of the PAP. Expected ‘reduced fertility rates’ are mentioned as ‘externalities of the project’ with reference to ‘Health Outcomes’ (page 64) and in the economic appraisal (page 15), but are not part of the internal rate of return calculation.

6. Conclusion

The global public goods (GPGs) considered in this paper are sidelined in education strategies and are not well reflected in education outcomes. The MDGs are helpful insofar as universal primary education is important for all three GPGs, and gender equity is key to population stabilization. But the MDGs fail to deal with other aspects of education crucial to these GPGs, notably secondary, technical/vocation and adult education, education quality, education management and the curriculum.

TVET, adult education and the quality of education do feature in the Dakar EFA goals. But there are reasons why the MDGs are likely to be more politically important, notably a much stronger role in guiding major international development funds.

However, any distortion that might arise from the MDGs in practice is likely to be minor compared with that arising from national political considerations and especially from financial and other management issues. It is likely that the latter are more important determinants of poor progress in expanding secondary education, TVET and adult education, and in quality improvements generally and through the curriculum. These management issues include the built-in expenditure bias towards salaries and infrastructure, related failures in morale and accountability, relatively high per-student subsidies at secondary and tertiary levels, the need for improved collaboration, coordination, communication and market-driven processes in adult education and TVET, and more rational and efficient management of the curriculum.

If the international development community wishes to lay more emphasis on all areas of education important for achieving global public goods, responding to a

resurgence of interest in political, environmental and demographic stability, then it is these management issues that need to be the focus of attention.

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Developing an International Network to Support Early Childhood Development (ECD): Results from Experience in Africa

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Abstract

An effective network for capacity building, knowledge sharing, and intercountry cooperation is a powerful vehicle to enhance allocative efficiency in education development. This article describes an early childhood development (ECD) network for Africa and its multipronged approach of regional partnerships, south-south learning exchanges through international conferences and seminars, and an ECD virtual university that uses 21st-century technologies and distributed learning methods to provide systematic training and build capacity among cohorts of ECD leaders in the Majority World. The article outlines the network's history, goals, key results, challenges encountered, and lessons learned, and addresses the question: In the context of education development, *why is early childhood so important?*

Introduction

This issue of the *Journal of International Cooperation in Education* is devoted to illuminating areas where education aid can have the greatest impact on education development. We submit that one such area is the development of effective networks for capacity building, knowledge sharing, and intercountry cooperation. To demonstrate the benefits of such a network, we present the case of an early childhood development (ECD) network for Africa and its multipronged approach of regional partnerships, south-south learning exchanges through international conferences and seminars, and an ECD virtual university that uses 21st-century technologies and distributed learning methods to provide systematic training and build capacity among ECD leaders in the Majority World.

Before the network's inception, Africa's youngest and most vulnerable children faced a challenging future with only scattered support. Just a handful of African countries allocated any of their education budgets to ECD, and those few allocated very small amounts (Colletta and Reinhold 1997). Only one or two countries had developed a national ECD policy. Efforts to deliver services to children lacked harmonization and thus tended to be ineffective.

Today, due in large part to network activities, 19 African countries now have a national ECD policy, and many others are in the process of drafting one. An African

international conference on ECD has become a triennial event. Participants in the conference, of whom about 85% are African, increased from 200 in the 1999 event to 600 in 2009, and from 19 African countries to 42 (Pence 2008a; and personal correspondence with E. Vargas-Barón, 9 May 2010). The World Bank and other partners have invested \$US 136 million and technical support to address the needs of young children in Africa through community initiatives (Garcia 2003). Productive regional partnerships and a supportive ECD community have been formed among 78 graduates of the Early Childhood Development Virtual University (ECDVU) and their learning and professional partners. Support for vulnerable children in Africa has never been stronger, and much has been learned about how to enhance the effectiveness of that support.

This article outlines the history of an ECD partnership in Africa, its goals, key results, challenges encountered, and valuable lessons learned. First, however, we address the question: In the context of education development, *why is early childhood so important?*

Why does early childhood matter?

In the latter part of the 20th century, children became the focus of international attention. In November 1989, the United Nations General Assembly formally adopted the Convention on the Rights of the Child (CRC), which was ratified “more quickly and by more countries than any other human rights instrument” (Annan 2001, 1). Acknowledging that “learning begins at birth” (UNESCO n.d.), in 1990 at the World Conference on Education for All in Jomtien, Thailand, the global community pledged to “universalize primary education and massively reduce illiteracy by the end of the decade” (UNESCO 1995). Ten years later, at the follow-up conference in Dakar, Senegal, delegates took stock of the global failure to meet those targets and committed themselves to six education goals to be achieved by 2015. The first of these goals was “expanding and improving early childhood care and education, especially for the world’s most vulnerable and disadvantaged children” (UNESCO 2000). That same year, when United Nations member states signed the Millennium Declaration, young children's needs and development were recognized as key to reaching the overarching Millennium Development Goal (MDG) of eradicating poverty by 2015 (United Nations Secretary General 2006).

It is argued, however, that none of these global targets can be reached without significant investments in early childhood (UNESCO 2006). In its *4 Cornerstones to Secure a Strong Foundation for Young Children*, the Consultative Group on Early Childhood Care and Development (2010) asserts:

The real crisis in education is in early primary – yet it receives almost no attention. By the time more money and resources are put into the later years of school, it is too late for the many who have already dropped out of school altogether!

... Good quality early primary education improves the efficiency of the

schooling system and saves money by improving achievement and reducing repetition and drop-out. It dramatically improves the chances of meeting the targets of EFA and the Millennium Development Goals. The return on investment is magnified when quality early primary schooling is combined with early childhood services prior to children entering school (1-2).

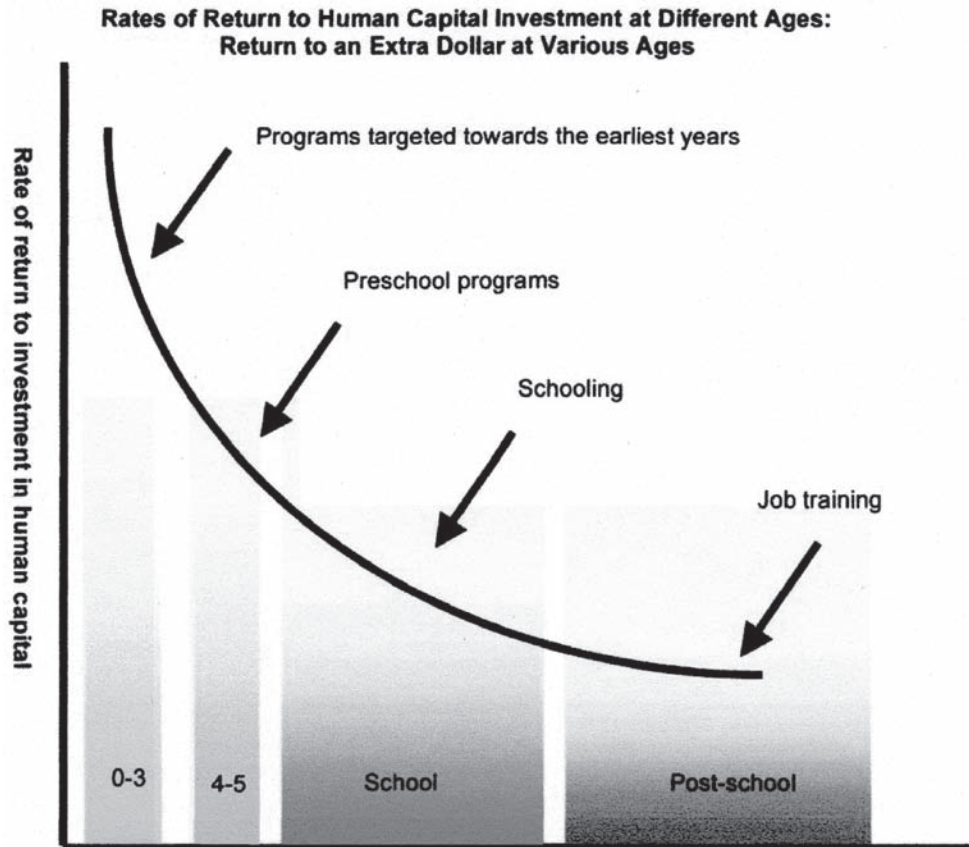
Grantham-McGregor and colleagues (2007) estimate that more than 219 million children under age 5 will not reach their developmental potential due to illness, malnutrition, and a lack of nurturing care, early stimulation, and education. This reality “places an enormous burden on the children, their families, and their societies” (Black et al. 2008, 455).

Extensive brain research shows that 80% of a child’s brain growth and synapse development occurs before the age of 3 (Gopnik 1999; McCain and Mustard 1999; Mustard 2007; Shonkoff and Phillips 2000; Shore 1997). Vargas-Barón (2009) contends:

The period of gestation to age three is the foundation for all later growth and development. If children who are fragile, pre-term, low-birth weight, at-risk, developmentally delayed or disabled do not receive appropriate, quality ECD services, they will never reach their inborn potential (10).

Quality ECD interventions can reduce the risk for vulnerable children, yet in 2008, *86% of children in sub-Saharan Africa had no access to an early childhood program* (CGECCD 2010). Handa and Sharma (2008) estimate economic losses resulting from the failure to ensure adequate ECD. Applying the Lancet model (Grantham-McGregor et al. 2007) to two longitudinal data sets from Eastern and Southern Africa, they calculate the cumulative lifetime loss in adult income for children who are stunted by age 7 at approximately 30% (Handa and Sharma 2008, 25).

Carneiro and Heckman (2003) study rates of return on investment in ECD in relation to investments in schooling and job training. As demonstrated in figure 1, they find that the highest rates of return accrue from programs that target children in the first three years.



Source: Carneiro and Heckman (2003) reprinted in ADEA-WGECD, UNESCO/BREDA, & Save the Children USA (2009)

Figure 1. Rates of return to human capital investment at different ages

Because the rate of return on investments in early childhood is so high, the World Bank’s Africa Region Human Development Department promotes ECD as a key strategy for poverty alleviation (Garcia 2003). For the most part, however, despite convincing evidence regarding the devastating social and economic costs of failing to provide quality early childhood services to vulnerable young children (Cleveland and Krashinsky 1998; Heckman 2000; Kilburn and Karoly 2008; McCain and Mustard 1999; Van der Gaag and Tan 1998; Young and Mustard 2008), it remains a challenge to convince decision makers to expand investments in early childhood. Typically, donors and national political and policy leaders want quick results, and many believe the return on investment in ECD to be only long term. Vargas-Barón and Williams (2008) argue, however, that significant short- and medium-term benefits can also accrue from investments in quality ECD services. In the short term, for example, preconception and prenatal education and health care

yield greatly lowered health care costs and reduce the number of high-risk parents who require intensive early childhood intervention services. Medium-term results include the following:

- Early childhood services tend to improve rates of timely enrolment in primary school, and children are better prepared for success in school.
- Once in school, children with early childhood education through pre-primary education tend to have better attendance records, repeat grades less, drop out of school less, and complete their primary education.
- Parent education and child development services combined with good case management and tracking systems improve child rearing, reduce child abuse, and reduce child welfare costs. (Vargas-Barón & Williams 2008)

These savings often more than compensate for expanding investment in early childhood. And, over the long term, they yield additional savings related to improved national productivity, increased taxes, reduced criminality, and enhanced citizen engagement (Vargas-Barón & Williams 2008).

James Heckman (2006), Nobel Laureate in economics, summarizes the research implications delineated above as follows:

It is a rare public policy initiative that promotes fairness and social justice and at the same time promotes productivity in the economy and in society at large.

Investing in disadvantaged young children is such a policy (A14).

History of the partnership in ECD: Interlocking networks

The network supporting ECD in Africa has evolved over a period of many years; it encompasses several groups whose members frequently collaborate and, in many cases, overlap. We identify these groups and their main objectives below; in the subsequent sections we outline the history of their partnership.

Consultative Group on Early Childhood Care and Development (CGECCD)

The CGECCD works to identify gaps, critical issues, and emerging areas of need and interest related to ECD. Established in 1983 by a small group of donor funding agencies, the CG has evolved into a respected global network of committed partner agencies, institutions, and ECD professionals. Its mission is to improve early childhood policy and practice, and a major objective is to strengthen regional capacity to support young children's development (<http://www.ecdgroup.com/aboutus.asp>).

Early Childhood Development Network for Africa (ECDNA)

The Early Childhood Development Network for Africa (ECDNA) was formed in 1994. Supported by international donors, ECDNA was instrumental in planning an Africa-wide ECD seminar in Namibia in 1997, discussed in more detail in a later section. The network merged into ADEA's Working Group on ECD in about 2000 (Cyril Dalais, personal communication, May 2010) .

Working Group on ECD (WGECD)

In 1996 the Donors for African Education (now the Association for the Development of Education in Africa, ADEA) organized a Working Group on ECD (ADEA-WGECD). The Working Group undertook country-level ECD policy studies (Torkington 2001; Torkington and Irvine 2000) and subsequently focused its efforts on promoting networks at the country level. The WGECD continues to play a key role in African ECD development. It is currently hosted by Save the Children and chaired by UNESCO BREDA (based in Dakar, Senegal). As part of a planned “graduation” process for ADEA Working Groups, the WGECD will eventually be unlinked from ADEA. In November 2009, its Steering Committee proposed beginning this process.

Early Childhood Development Virtual University (ECDVU)

The Early Childhood Development Virtual University (ECDVU), whose history is detailed below, complements and extends the work of other networks in Africa. Funded by the World Bank and the Norwegian Educational Trust Fund, the ECDVU was established at the University of Victoria, Canada, in 2000. Its mission is “to further develop African ECD leadership capacity as a key strategy in support of child, family and community well-being and broader social and economic development” (ECDVU 2000).

Africa Early Child Care and Development (ECCD) Initiative

The World Bank’s Africa Early Child Care and Development Initiative was launched in September 2008 with four main purposes:

- To improve the capacity of African countries to attain the education MDGs by laying a strong foundation of early childhood care and education, especially for the most vulnerable and disadvantaged children.
- To increase understanding among stakeholders of the importance of children’s early development and learning as a key ingredient in achieving Education for All (EFA) and Fast Track Initiative (FTI) goals.
- To provide country teams with technical support to develop national ECCD policies and programs.
- To foster the scaling up of early childhood policies and programs through the EFA–FTI by helping countries obtain sustainable funding for cost-effective approaches.

The Initiative builds on ten years of work by the World Bank’s Africa Region Human Development Department (<http://www.worldbank.org>).

Timeline of key ECD events in Sub-Saharan Africa

The following timeline, adapted from Pence and Nsamenang (2008), provides a brief overview of key events in the ECD field in Africa and furnishes some context for the

subsequent history of the ECD network.

- Early 1970s:** Bernard van Leer Foundation supported development of ECD through the Educare project in South Africa and through the Kenya Institute of Education. (Its first ECD supported program started in Jamaica in 1966.)
- Early 1980s:** Aga Khan Development Network began planning for Madrasa Resource Centres (MRCs) in East Africa and formulating internationally informed approaches to Islamic early childhood education and development. (First program at Liwatoni Mosque in Mombassa in 1986.)
- 1980s:** A small number of other donors and international nongovernmental organizations (INGOs) came forward in support of ECD in various African countries.
- 1990:** Many African countries were quick to sign the Convention on the Rights of the Child (United Nations 1989).
- 1992:** First Africa Region International Society for the Study of Behavioral Development (ISSBD) meeting held in Yaoundé, Cameroon on the theme “Child Development and National Development.” Subsequent regional meetings held approximately every two years.
- Mid to late 1990s:** World Bank ECD funding credits in SSA (Eritrea, Kenya, Nigeria [limited], Uganda).
- 1996:** Creation of Réseau africain francophone prime enfance (Early Childhood Francophone African Network) through UNESCO and UNICEF.
- 1998:** 7th Conference of Ministers of Education of African Member States (MINEDAF VII) accepted recommendation that “clear policies be formulated to promote early childhood education and development” (Report of the VII Conference, April 1998, <http://unesdoc.unesco.org/images/>).
- Late 1990s:** UNICEF shifted to greater ECD emphasis (integrated ECD = IECD).
- 2001:** The New Partnership for Africa’s Development (NEPAD) formed.
- 2002-2003:** ADEA–WGECED project to support national policy planning for ECD in Burkina Faso, Mauritania, and Senegal.
- 2006:** ADEA Biennial Meeting, Libreville, Gabon, focused on ECD programs (<http://www.adeanet.org>).
- 2008:** *Africa’s Challenge: Early Childhood Care and Development in Sub-Saharan Africa*, Garcia, Pence, and Evans (Eds.). 24 chapters with 56 authors, mostly based in Africa, published by the World Bank.

A chronology of steps in network building

Coordination among the networks has been maintained through periodic face-to-face meetings and ongoing electronic linkages. Importantly, the steps taken to coordinate an effective ECD network for Africa can also be viewed as some of its key results. This section outlines the network’s growth trajectory through descriptions of the ECD seminar

series, international conference series, and ECDVU. In the subsequent section, we utilize thematic lenses to discuss goals, approaches, challenges, and important lessons learned in the process of building the network through each of these vital components.

ECD seminar series

In 1994, UNICEF asked the University of Victoria (UVic) to establish a series of ECD training seminars for middle-level professionals within UNICEF and their government and nongovernmental partners. The seminars were intended to help individuals trained in other disciplines to better understand ECD's principles and potential, and to foster intersectoral and regional cooperation to address its objectives. The regional seminars (initially called Summer Institutes based on an earlier series at UVic) typically lasted two or three weeks and brought together country-identified professionals with regionally and internationally recognized ECD specialists. Over time the seminars focused primarily on Africa. The first African seminar, as mentioned above, was held in Namibia in 1997; a second was held in The Gambia in 1998. The seminars proved particularly effective in:

- identifying country-level ECD leaders;
- highlighting worthwhile but little-known ECD initiatives in Africa; and
- forging the personal and professional bases for enhanced networking and information sharing.

Data from the seminars indicated that opportunities for sharing ideas and developments within the ECD field across Africa were few, communication was difficult, and access to international development ECD specialists was limited.

Participants found the seminars useful and asked the organizers to seek funds for an ongoing set of linked seminars that could serve as a vehicle to earn graduate-level academic credit. The result was a proposal to the World Bank to fund development of an Early Childhood Development Virtual University (Pence 1998). While the seminar series has not been picked up since 1999, this fact does not reflect a lack of interest, but indicates limited capacity to maintain the series while undertaking two newer initiatives, the international conference series and the ECDVU (Pence 2008a).

International ECD conferences

Following the Gambia seminar the World Bank and several partners initiated discussions to develop an international conference on African ECD. Now a triennial event, the first African International Conference on ECD was subsequently held in Kampala, Uganda in September 1999. The conference built on networks established through the ECD seminars. About 200 people working in the ECD field in Africa attended, including three national ministers. Subsequent conferences were held in Eritrea in 2002, Ghana in 2005, and Senegal in 2009. Growth in the scope, participation, and impact in the conferences has been exponential. (For an overview of the four international conferences, see figure 2.)

Figure 2. 1st, 2nd, 3rd, and 4th African International Conferences, comparison of size and scope

Conference location and theme	Date	Attendees	SSA Countries	Presenters	African-based participation	African govt representation
Kampala, Uganda <i>Showcasing ECCD: Innovation and Application in Africa</i>	1999	200	19	35	75%	3 national ministers
Asmara, Eritrea <i>Health, Nutrition, Early Childhood Care and Education (ECE/ECCE), and Children in Need of Special Protection</i>	2002	200	28	60	80%	6 national ministers and 1 international minister
Accra, Ghana <i>Moving Early Childhood Forward in Africa</i>	2005	300	39	80	85%	6 national ministers and 27 international ministers or reps
Dakar, Senegal <i>From Policy to Action: Expanding Investment in ECD for Sustainable Development</i>	2009	600	42	146	89%	23 ministers and deputy ministers and 90 additional govt reps

Source: Authors, with input from Emily Vargas-Barón (May 2010)

Key among its many benefits, the conference series provides the opportunity to engage in broadly significant African ECD advocacy. For example, the *Asmara Declaration* (2002) was put forward by participants at the 2002 conference, the *Accra Communiqué* (2005) was endorsed by more than 25 ministers or ministerial representatives who attended the Accra conference, and the Dakar conference produced *A Call to Action* (Delegates of the 4th African International Conference on ECD, 2009). The conference series has helped place young children's care and well-being on the African political and professional agendas and, significantly, it has brought together African governments and major international organizations to collaboratively advance global education goals. The recent Dakar conference, for example, was cosponsored by ADEA, World Bank, UNESCO and UNESCO/BREDA, UNICEF, Save the Children USA, Aga Khan Foundation, Bernard van Leer Foundation, Consultative Group on ECCD, ECDVU/UVic, Education for All Fast Track Initiative, Open Society Institute, PLAN International, Save the Children USA, World Health Organisation, and the Republic of Senegal.

Early Childhood Education Virtual University (ECDVU)

Participants in the Namibia and Gambia ECD seminars identified a need for a graduate-level applied ECD education program that would build on the seminars' success and link participants electronically to enable them to share country-level experiences and work together on regional goals. During this period, the World Bank's Africa ECD Team was rapidly expanding the ECD portfolio and looking to develop effective means to train ECD leaders in Africa. Distance learning was a promising option. The World Bank prepared terms of reference to develop an ECD virtual university, and a draft proposal was submitted (Pence 1999). The ECDVU – “a university without walls” – would advance country-identified ECD objectives and allow participants to study while working full time in their countries. The program's methodology and curriculum preparation were financed by Norwegian Educational Trust Funds managed by the World Bank.

Work to develop the ECDVU began in January 2000. A technology feasibility study was conducted and an international ECD advisory group¹ consulted. The planning team elaborated a curriculum design based on generative curriculum (Pence et al. 1993) principles of respect for multiple sources of knowledge and the importance of local context. All aspects of the program, including assignments, discussion sessions, use of local teams, and inclusion of local ECD leaders in seminars, were designed to address three central objectives: leadership promotion; capacity building; and network enhancement.

The international advisory group assisted in identifying priority countries and developing criteria that could be used in-country to select participants from among the many applicants. The approach that evolved linked back to the seminar series, using network participants from the seminars, in coordination with UNICEF, World Bank, and state government staff, to create an ECD country committee composed of key ECD groups and individuals from each country. The committees set ECD goals for their country and nominated ECDVU participants. In order that personal financial situations would not be a factor in student applications, the program was tuition free. All program delivery costs were covered by core donors, including the World Bank at country levels, UNICEF at international and national levels, UNESCO, the Bernard van Leer Foundation, and the Canadian International Development Agency (CIDA). In addition, about 60% of the employers were able to contribute support to their employees.

Program delivery commenced in August 2001 and proceeded in six-month terms of Web delivery with a midpoint two-week face-to-face seminar. Each seminar was held in a different part of Africa where faculty (selected from around the world as well as that region) were joined by ECD specialists for presentations and discussions. In conjunction with the seminars, site visits were made to key ECD programs in the vicinities, and a wide variety of academic and “network bonding” activities took place.

¹ See <http://www.ecdvu.org> for members of this advisory group, the African students' thesis and project committee members, and other key individuals, organizations, and donors associated with the ECDVU program.

A remarkable 90% of learners who enrolled in the first delivery completed the program, graduating in 2004. The World Bank evaluator noted that not only had these results been achieved at a “considerably lower cost” than a typical masters degree available in North America (Vargas-Barón 2005, 43), but that the ECDVU “is also making a significant impact upon policy and program development for Education for All and Poverty Reduction Strategies” (ibid., 12).

Concurrent with this three-year program, in 2001 the World Bank’s Middle East-North Africa (MENA) department requested delivery of a one-year professional development program based on the ECDVU model. Utilizing funds from the Dutch government, the ECDVU developed the MENA program in 2002 and delivered it in 2003. Since then, a second MENA and two SSA programs, all one year in duration, have been delivered, the latter in partnership with African universities (SSA-2) and with funding support from in-country employers, UNICEF, Open Society Foundation-UK, the World Bank, and the Bernard van Leer Foundation (SSA-3; for more details on these programs, see <http://www.ecdvu.org/overview.php>).

The major projects completed through the various ECDVU deliveries are outstanding examples of capacity building. The participant-directed initiatives meet country- or community-identified needs in the service of young children and their families. Among many others, the projects include:

- providing parent support and enrichment in rural districts of Eritrea through an innovative training of trainers program;
- developing and implementing child and family policies in Malawi and Ghana;
- supporting HIV/AIDS-impacted children through innovative grandparent support programs in Uganda;
- creating ongoing in-country ECD networks in Tanzania and Malawi; and
- creating an undergraduate ECD program in national institutions in Yemen and Lesotho.

Concurrent with the network-building steps described above – and in many ways as a result of the momentum they created – during these years the World Bank invested in freestanding ECD programs in several African countries; other partners also increased their investments in early childhood.

Successful approaches

In pursuit of its primary goal – building African ECD capacity to meet global development targets – the African ECD network employs a variety of interconnected approaches. The most effective of these strategies are described below.

Building on lessons learned

One key to success in the process of building an African ECD network has been the opportunity to share experiences and lessons learned among network partners. For

example, a vital step in developing the ECDVU involved thoroughly exploring past results and challenges in the African and global ECD fields. Based on lessons learned, the development team and its advisory group agreed that the ECDVU would:

- Promote a learning pod (team) approach with three or more participants from a given country.
- Connect learning to participants' workplace objectives.
- Utilize local content and knowledge.
- Provide participants with a very high level of technical, personal, and professional support throughout the program delivery (Zuckernick 2000).

These decisions proved highly effective in supporting the approaches described below.

Nurturing learners through mentorship and support

A decision by the ECDVU developers to create the position of cohort manager has proven invaluable. The cohort manager provides ongoing support and connection among learners, instructors, and the central office. Similarly, the country team approach allows participants to forge relationships in which they can support each other to advance shared goals for their country and region. The ECDVU has fostered a community of learners and practitioners in which mentorship and partnership play key roles. Working together, ECDVU faculty, learners, and partners have become much more than a network or even a community of practice: The ECDVU has evolved into a *family* in support of ECD in Africa. Such a process takes time, personal engagement, and commitment.

Fostering an African community of practice

The international ECD conference series grew out of a concern that African voices and perspectives are too seldom heard in international forums, even some that have taken place in Africa (Pence 2008b). To rectify this gap, the conferences emphasize African participation in terms of delegates, presenters, keynote speakers, government representation, and themes. As seen in figure 2, African participation at the Dakar conference, fourth in the series, was 89 percent.

Similarly, the ECDVU strives to foster an African community of practice. For example, top international instructors are balanced with an increasing number of local ECD leaders. Participants' projects, country reports, and key assignments are published on the ECDVU website with participants' photos, biographies, and contact information. Whenever possible, graduates are identified as capable specialists and consultants when countries or INGOs are seeking to develop some facet of their ECD work in Africa. An increasing number of south-south site visits have developed over the past ten years, and some countries, such as Mauritius, have plans to establish a Centre of Regional Expertise in ECD.

The conference series provides opportunities both for ECDVU participants to continue networking after they complete the program and for other African ECD leaders to share

and support good practices at program and policy levels. Organizers have increasingly sought to bring political leaders into these forums to involve them in planning next steps.

Utilizing new and appropriate technologies

As described above, the ECDVU combines distance and face-to-face learning methods to deliver some of the world's leading thinking on ECD to local settings. The new information communication technologies (ICTs) work best when participants can access larger urban centers; however, as time goes by, more remote settings in Africa are becoming linked. ECDVU materials are provided on the website as well on discs and in print. This purposeful redundancy enhances access to the materials.

In the future the network plans to explore new social networking platforms (e.g., Facebook, Skype, LinkedIn) and cell phone possibilities to expand access and outreach into areas not previously reached by ECD programming.

Promoting in-country contribution while learning

The ECDVU ultimately measures its success by change on the ground with respect to children's well-being: new programs, policies, educational opportunities, political commitments, and other indicators of progress related to healthier children, families, and communities (ECDVU n.d.). The evidence base for these changes has been documented in an external impact evaluation (Vargas-Barón 2005) and in various publications (e.g., Garcia, Pence, and Evans 2008; Pence and Marfo 2004). These results can be attributed in large part to the country team approach for recruiting participants and defining ECD goals. Additionally, the flexible curriculum design allows learners to study while working full time to advance their country's ECD objectives.

Stemming brain drain

Specialists from diverse professions have identified brain drain as one of the most significant challenges to African capacity-building efforts (Padarath et al. 2003; Tebeje 2005; Wadda 2000). The ECDVU is remarkable not only for its extraordinarily high completion rates (over 95% across three deliveries) but for its even higher record of 98% retention of graduates in Africa. Further, over 90% of graduates have remained active in child and family-related employment. These results can be attributed in part to the participant identification process. Country goals and objectives are established by an intersectoral ECD committee and these goals are then broadcast to solicit applications. The same committee vets applicants, noting those with appropriate backgrounds and a history of commitment to children's issues and national development. Applicants are asked to share their application with their employer and request their in-kind and financial support for travel and accommodation at seminars. This web of understandings and commitments helps ensure that only those who are very committed to the program's capacity-building objectives are enrolled.

Reaching out to funding partners in effective ways

Increasing evidence for the economic imperative to invest in early childhood has in some ways facilitated garnering support for ECD initiatives. For example, in 2008, global business leaders attended an international conference in support of ECD programs as a means to combat poverty and improve business performance (Fournier 2008). African governments are increasingly becoming aware that investing in ECD is essential to attain sustainable development and achieve EFA and the MDGs (Vargas-Barón 2009).

All of the network's initiatives have involved working with international and local partners. That network of support allows the network and its component parts to survive and thrive. This in turn affords the network opportunities to garner support for early childhood policies, programs, and training.

The principle of engagement with key international organizations and donors was put in place at the Kampala conference. The World Bank and conference organizers approached UNICEF, UNESCO, ADEA, WHO, Aga Khan Development Network, Save the Children, PLAN International, Bernard van Leer, and other organizations to identify suitable presenters and financially support them to attend. That "many partners" approach has continued as a key feature of the conference series' organizing structure (Pence 2008b).

From its conception, the ECDVU consulted with an international advisory group representing the highest level of ECD expertise in developing countries around the world. Some of the advisors had participated as instructors or facilitators in the ECD seminar series and many were associated with leading donor and program support organizations in international ECD. Similarly, the ECDVU built consultation with African governments into its foundations to enhance efficiency in planning and funding programs for young children.

These and other strategies have contributed to developing an engaged, committed network in support of ECD in Africa. These approaches are not without challenges, however. We address several of the most significant obstacles in the following section.

Challenges

The expansion of the World Bank's ECD portfolio in the 1990s created a huge demand for ECD training and networking, since the projects demanded skilled professionals to implement the programs. For example, the World Bank-supported Eritrea ECD Project paid for project staff to be trained through the ECDVU program, and a similar arrangement was instituted for Nigerian participants in the third ECDVU cohort. Many other ECDVU participants were sponsored by international NGOs who found its distance learning methods efficient for training their staff. While the network for African ECD was challenged to meet this demand, in doing so it produced beneficial results throughout the network. For example, the Eritrea project directly benefited from the networking of ECDVU participants, and the project implementation evolved in tandem

with network knowledge that was building at the same time.

The network faces other challenges, including the need to stay abreast of rapidly changing technologies; the intricacies of keeping partnerships alive; the demand for national as well as regional networks; and the challenge of building a truly African future with local research that feeds into local training and local program development, resulting in African models, African scholarship, and African practitioners.

The principal challenge to maintaining the network, however, is the lack of predictable, sustainable funding sources. Most donor programming, including that of the World Bank, UNICEF, and various partner foundations, is based on cycles of one to three years. These short-term cycles preclude any longer-term planning of technical assistance for capacity building, networking, and training.

The Norwegian Educational Trust Funds and subsequent Education Development Trust Funds, via the World Bank, provided consistent funding of the ECD networks in Africa over a period of more than ten years (1998 to 2009). These funds were replenished from year to year to support the international conferences and the ECDVU. Consistent ongoing support for the ECDVU was also provided by UNICEF and the Bernard van Leer Foundation, with funds for specific deliveries from CIDA, UNESCO, and the Open Society Institute. The current global financial crisis now threatens the gains that have been made in early childhood as well as future investments in ECD.

Network building takes time and consistent funding

Capacity building, training, and networking (especially in support of south-south learning) are shown to be key components of early childhood education, care, and development. But the benefits of these activities, while acknowledged, are difficult to fund consistently given the current external program development funding processes adopted by the international donor community. For instance, these funds are allocated on an annual basis or, at most, in three-year cycles. Fruitful networks need years to mature; in the case of the ECD network in Africa, a commitment over a period of ten years is now yielding significant advances across a range of fronts. Thus it is important to clearly define the goals for young children and reallocate education aid to pursue those mechanisms – many of which have been identified here – that can support learning networks as they evolve and mature. Only then will learning networks fulfill their potential to enhance the well-being of the world's most vulnerable children and contribute to meeting global education and development goals.

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Building Networks for Knowledge-Exchange and Peer Learning in Science and Mathematics Education within SEAMEO Member Countries and Beyond – the Role of SEAMEO RECSAM

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SEAMEO RECSAM

Abstract

SEAMEO RECSAM was founded with the main purpose of helping member countries improve science and mathematics education. This would serve as a foundation for the development of technically and scientifically trained human capital which would be increasingly needed for the economic progress of member countries. Similar to many other SEAMEO Centres, RECSAM was designed to be supported extensively by the host country, Malaysia, where it resides. RECSAM contributes to the improvement of science and mathematics education in the region and beyond through various programmes and activities. They include training, research & development, convening international conferences, seminars and congresses, as well as to serve as an information centre and clearinghouse. To ensure relevancy of its activities for the region, RECSAM's programmes are formulated in consultation with senior education representatives from member countries as well as expert input from associate member countries. As with many non-profit organisations, funding is a recurring challenge. However, with the support of the Malaysian Government, the SEAMEO Secretariat and the member countries, RECSAM has been able to continuously reinvent itself to be relevant to the needs of the region.

Introduction

Cooperation efforts by developed nations to developing nations, whether as financial aid or technical cooperation are well documented in the literature. What is less known is that developing countries have for a long time also collaborated among themselves to help each other for various reasons including to foster peace and as potential for future economic activity. According to de Sa e Silva (2009), this idea of two or more developing countries helping each other existed at least since the early 1950's. These collaborations could be between two countries or between groups of countries sharing commonalities like religion or proximity to one another. SEAMEO is one such collaborative effort of member countries helping each other in Southeast Asia. This paper will highlight RECSAM's role as one of the centres established by SEAMEO to promote and improve science and mathematics education at the regional level.

SEAMEO RECSAM as a Multilateral Organisation

The Southeast Asian Ministers of Education Organisation (SEAMEO) is a multilateral non-profit organisation established on 30 November 1965 aimed to promote cooperation in education, science and culture in the Southeast Asian region. It consists of eleven member countries, namely, Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor Leste, and Vietnam. Eight associate member countries support SEAMEO namely; Australia, Canada, France, Germany, Netherlands, New Zealand, Norway and Spain. It is also supported by three affiliate members, namely, the International Council for Open and Distance Education (ICDE) Norway, University of Tsukuba Japan and the British Council. Japan is a partner country. These countries and organisations support SEAMEO in various ways.

The SEAMEO Council is the policy making body of SEAMEO and consists of Ministers of Education of each member country as well as representatives from associate and affiliate members, and they normally meet every year during the SEAMEO Council Conference to make policy decisions. The SEAMEO Secretariat is the executive arm of the Council and it is located in Bangkok, Thailand. The SEAMEO Secretariat executes decisions made by the Council. SEAMEO carries out its activities through nineteen specialist regional centres/units that undertake training and research programmes in various fields of education, science and culture and SEAMEO Secretariat is the coordinating body for these centres. SEAMEO activities follow guidelines provided for in the SEAMEO Charter (SEAMEO, 1968).

The operational budget for the SEAMEO Secretariat is underwritten by member countries and their annual share is determined by the Asian Development Bank (ADB) contribution index. For instance, the contribution by Malaysia for 2005 was approximately RM 918, 700 or USD 255, 194 (EPU, 2006). The SEAMEO Secretariat has also a SEAMEO Education Development Fund which serves as a central repository for funds from other sources to support its activities.

The Regional Centre for Education in Science and Mathematics (RECSAM) is one of the first centres formed after the formation of SEAMEO. It was formed with the premise that developing countries need an increasing supply of human resource that rely on science and technology and a strong basics on science and mathematics will contribute towards that end. By design RECSAM is located in Penang, Malaysia and enjoys significant support from the government of Malaysia. Since its inception in 1967, SEAMEO RECSAM has assisted in the major development of educational manpower for the advancement of science and mathematics education at both primary and secondary school levels for its eleven member countries. Since then RECSAM has been continuously offering full scholarship to teachers and educators in the region to take part in training to improve their skills and make them more adaptable to the changing educational environment. Up to now, well over sixteen thousand teachers and key educators in science and mathematics have benefitted from RECSAM's programmes and activities. RECSAM

has made significant steps in its purposes and roles, as RECSAM now embarks into its Ninth Five-Year Plan for the years 2010 till 2015.

RECSAM is an autonomous organisation but it relies heavily on funding by the Malaysian government. For instance the site, buildings and its maintenance are heavily financed by the Malaysian government. As will be explained in a later section, this funding is not enough. The Enabling Instrument of RECSAM (SEAMEO RECSAM, 2007a) is the legal document to guide its operation. The Enabling Instrument requires the Governing Board, whose membership consists of a nominee from each member country to provide governance to RECSAM.

RECSAM is headed by a Centre Director who reports to the Governing Board which meets every year to endorse activities proposed by the Centre. RECSAM has three divisions; the Research & Development Division, the Training Programme Division, and the Administrative Division. The academic activities of the centre are carried out by a number of seconded, permanent and contract academic staff. Seconded staffs are government educators of member countries seconded to RECSAM. They work for about three to five years at RECSAM before returning to their country. The total number of staff approved in the organisational structure of RECSAM is ninety-eight. This includes twenty-two academic staff inclusive of the two Deputy Directors for R&D and Training Programme. However, the Centre has not managed to fill in all the posts and at present, there are only thirteen academic staffs. Two seconded academic staff from Thailand and Indonesia recently returned to home service but three more academic staff will be joining RECSAM before the end of the year once their documents and work permits are approved. The Administrative Division has seven executives taking charge of finance, publication, marketing, administration and the International House, library information & documentation, and ICT. The support staffs assist in the technical, administrative and general duties.

Until recently, RECSAM was the only organisation mandated to assist member states to improve education in science and mathematics in their respective countries. However, in 2009, two centres were established by SEAMEO in Indonesia, namely the Regional Centre for Quality Improvement of Teachers and Education Personnel (QITEP) in Mathematics which is located in Yogyakarta and the Regional Centre for QITEP in Science which is located in Bandung.

Knowledge-Exchange and Peer Learning Activities of RECSAM

The scope and type of knowledge-exchange and peer learning activities of RECSAM that has evolved over many years have been shaped by the dynamic needs of the region as well as funding constraints. RECSAM's activities mostly focus on empowering teachers and teacher educators to improve their science and mathematics Pedagogical Content Knowledge (PCK) as well as the development of effective school based professional development practices. Two main knowledge-exchange and peer learning programmes are described next.

Training Programmes

There are five main modes of training offered by RECSAM, namely Regular Courses, In-Country Courses, Customised Courses, Third Country Training Programmes, and training workshops. The ultimate goal of these programmes is to improve the effectiveness of teachers in PCK so that they in turn will contribute to improving students' learning in science and mathematics. The PCK introduced incorporates numerous pedagogies such as active teaching and learning approaches, constructivist inquiry-based activities, scientific skills, and multiple intelligences. Emphasis is given to trends and issues in Science, Technology, Environment, Society (STES), alternative assessment, problem-based learning (PBL) and Values-based education. Focus is also given to effective school based professional development through Action Research and Lesson Study. ICT is used extensively throughout the courses and participants are provided with the opportunity to explore and use these tools for teaching and learning.

RECSAM also explored the blended mode of training with research and development activities as the centre is a regional training hub to promote innovation and experimentation with sharing of best practices to enhance 'South-South Cooperation' initiatives. Generally, the mode of delivery for numerous types of 'knowledge-exchange and peer learning activities' was implemented either through face-to-face training courses/seminars/workshops, or digitally through e-learning mode to reach out to a wider audience. An on-line learning portal entitled "South East Asia Regional Capacity-building Hub" (SEARCH) was established to promote student-centred inquiry learning, project-based activities (PBA) and problem-based learning (PBL) (Ng & Nyunt, 2010).

Regular Courses. The government of Malaysia gives RECSAM a yearly Special Educational Development Fund (SEDF) to conduct activities for the member countries through full scholarships. This fund is mainly disbursed through the Regular Courses. The past few years saw seven one month Regular Courses being offered to member countries every fiscal year thus potentially benefitting a maximum of seventy-seven participants (one participant per country for each course). Additional participants can participate in these courses as fee-paying participants. These courses are designed in such a way that allows for maximum learning. Some of the highlights of the courses include inputs by experts followed by opportunities to translate these inputs into lesson plans. These lesson plans are then tried out with the course members where upon reflection, they are modified. These modified lesson plans are then tried out with the students in RECSAM's partner schools. Another post-mortem session is then held to improve the lessons based on observations of the participants and feedbacks from the course supervisors. At the end of the course, the participants are given a certificate of completion and later a certificate of competence if they show evidence of disseminating what they had learnt in their respective countries. The seven Regular Courses conducted for Fiscal Year (F.Y.) 2009/2010 are PS1444: Exploring Interactions in Science, Technology, Environment and

Society (STES) Education for Sustainable Development at the Primary Level, PS4120: Developing Scientific Skills for Meaningful Learning in Primary Science, SM-6522: Learning Mathematics in a Constructivist Secondary Classroom, SS-5265: Assessment in a Constructivist Environment for Teaching and Learning in Secondary Science, PM-2265: Realistic Mathematics Education (RME) for Meaningful Learning in Primary Mathematics, SM-3050: Integrating Information and Communication Technology (ICT) on Students' Assessment in Secondary Mathematics Classrooms, and PS-7112: Lesson Study: Enhancing Instructional Practices in Primary Science Classroom (SEAMEO RECSAM, 2010). RECSAM's Fiscal Year begins in July and ends in June the following year.

In-Country Courses. In-Country Courses are courses, typically of five days duration, that are conducted in the recipient country by two academic staff from RECSAM. They are a recent addition to the type of courses offered by RECSAM since F.Y. 2005/2006. They are one solution to concurrently addressing funding issues, increasing the centres' reach to more participants as well as customising the course specifically to the needs of the recipient country. Currently the funding by the Malaysian government allows for the conduct of seven Regular Courses and four In-Country courses per fiscal year. RECSAM will use the SEDF to finance the two staff to be sent to the recipient country while the latter will take responsibility for the local costs such as venue, participants' accommodation and meals, and other costs. Two examples (SEAMEO RECSAM, 2010) of In-Country courses held in 2009 include:

- “Active Teaching and Learning in Science” which was held at Ecotech Centre, Lahug, Cebu City, Philippines, from 14 - 18 September 2009. This In-Country course was organised by the Bureau of Elementary Education (BEE), Department of Education (DepED), Philippines. A total of 45 participants benefitted from the training programme.
- “Lesson Study” which was held at Princess Elizabeth Primary School, Singapore from 2 - 3 September 2009. The course was organised by the Training & Development Division, Ministry of Education Singapore with a total of 44 primary school teachers across Singapore.

Customised Courses. Customised Courses are courses that are customised to the needs of the recipient country or organisation. RECSAM does not fund these courses and it serves as an important income generating activity for RECSAM. The standard mode of Customised Courses involves direct negotiation between recipient country or an agent and RECSAM as part of a bilateral mode of cooperation. The two most recent examples of customised courses held are:

- “Classroom Action Research: Enhancing Teaching in Secondary Science and Mathematics” conducted at RECSAM from 9 November - 4 December 2009. Thirty Indonesian teachers benefitted from this programme and was requested and

sponsored by the Ministry of National Education, Indonesia.

- “Improving Student Performance through Assessment” for Ugandan and Zambian Science Educators from 31 May to 25 June 2010. These customised courses involved the participation of JICA as the funding agency making use of RECSAM to reach out to another developing country.

Third Country Training Programmes. The recent mode is to have a tripartite cooperation where a funding agency or organisation cooperates with another developing country or agency located in a developing country to fund programmes for a country or a number of countries. RECSAM was appointed as a Malaysian Technical Cooperation Programme (MTCP) Institution by the government in 2008 and RECSAM conducts two TCTP programmes; one with JICA for the African nations and the other with the Colombo Plan Secretariat in Sri Lanka for the Colombo Plan developing countries, four of which are shown below:

- Two TCTP courses for Colombo Plan countries entitled “Professional Development Programme for Secondary Mathematics Educators” and “Professional Development Programme for Secondary Science Educators” were conducted by RECSAM from 29 July - 18 August 2009. A total of 30 Mathematics and Science educators from Afghanistan, Bhutan, Brunei Darussalam, Fiji, Iran, Indonesia, Maldives, Myanmar, Nepal, Philippines, Sri Lanka and Thailand participated in these training programmes.
- Two TCTP programmes for the African nations entitled “Secondary Science Teacher Educators Training” and “Secondary Mathematics Teacher Educators Training” were conducted from 5 - 30 October 2009. A total of 30 Mathematics and Science educators from ten English-speaking African countries participated in these programmes, namely, Ethiopia, Kenya, Uganda, Nigeria, Tanzania, Zambia, Swaziland, Lesotho, Malawi, and Rwanda.

Training Workshops. In addition to the four main types of courses, RECSAM also conducts training workshops that are regularly convened at RECSAM. This is part of RECSAM’s role in hosting workshops and seminars from well-known academics of reputable educational institutions. These events are normally held between one and three days with the aim of providing an alternative scope for learning and some of them are planned to coincide with the Regular and Customised Courses so that these participants can have access to these high quality workshops.

Post Graduate Diploma. RECSAM also offers a Post Graduate Diploma programme leading to a Masters Degree in collaboration with Deakin University in Australia. The main rationale is to provide a route for participants from member countries to experience studying in a developed country for a fraction of the cost. A group of mathematics and science teachers from Aceh, Indonesia fully funded by the Aceh Province Government,

just concluded their six months Post Graduate Programme at RECSAM from 1 March – 20 August 2010. They will then further their studies for another four months at Deakin University to be awarded a Master of Education degree after completion.

Research and Development Activities

RECSAM convenes a number of knowledge generation and knowledge exchange activities to find solutions to emerging challenges as well as explore new opportunities to be taken by the region in order to progress science and mathematics education. Some of the major activities include:

Research. RECSAM conducts research to inform pedagogy as well as to inform policy. Research informing pedagogy is often confined to neighbouring schools within the vicinity of RECSAM. An example of a recently concluded research informing pedagogy is “The EUREKA Project” (Devadason et al. 2009), which studied the efficacy of using high fidelity 3D animations on science and mathematics for teaching and learning in six secondary neighbouring schools. Research informing policy often involves the participation of member countries. A recent study is on the use of ICT for teaching and learning Science and Mathematics among member countries. Eight countries participated in this study that resulted in the publication of a book (Devadason, Wahyudi, Cheah & Ng, 2010).

Journals. RECSAM publishes two journals; one caters for teachers while the other caters for researchers. The Learning Science and Mathematics online Journal is published every November and articles that offer practical suggestions for teaching and learning of science and mathematics are solicited especially from member countries or from participants from other countries who have participated in RECSAM’s programmes before. The International Journal of Science and Mathematics in Southeast Asia is a peer reviewed international journal published twice a year. The articles for this journal are reviewed by an international team of reviewers who are experts in the field of science and mathematics education.

Development of Resources. RECSAM coordinates and publishes resources that are of benefit to teachers and teacher educators. Recent publication includes the “The Training of Training Manual for Promoting Scientific and Technological Literacy (STL) for all” (Lee, 2008), “Teaching Science in School. La main a la pate resource materials for the primary classroom” (Foo, 2007) and the forthcoming book “Integrating Climate Change Issues in Southeast Asian Schools - A Teacher’s Guidebook” which is the result of a collaboration between RECSAM and other sister centres. RECSAM staff also contributed to the development of resources with other sister centres such as the SEAMEO Resource Package: Human Values-based Water, Sanitation and Hygiene Education (Pannen, Ng,

Jaslin, Dina & Herawati, 2007). On a smaller scale, participants' project works after the courses (at least those of a duration of one month or more), which are normally in the form of lesson plans, are also compiled and kept in the Library as resource materials.

Conference, Congress and Seminars. Knowledge sharing and exchange activities of RECSAM are periodically convened through the International Conference on Science and Mathematics Education (CoSMEd) and the Search for SEAMEO Young Scientists (SSYS) Regional Congress which are biennial events, and occasionally through seminars.

CoSMEd provides a venue where experts and practitioners (educators/teachers) from the region and beyond come together to discuss issues about teaching, learning and assessment in science and mathematics. The first CoSMEd was convened from 6 to 8 December 2005 with the theme "Bridging the theory-practice gap in science and mathematics education: The challenge to change". The 2nd CoSMEd was held from 13 to 16 November 2007 on the theme "Redefining Learning Culture for Sustainability" and the 3rd CoSMEd was conducted from 10 to 12 November 2009 on the theme "Improving Science and Mathematics Literacy: Theory, Innovation and Practice".

The SSYS regional congress was first convened in 1997 with the main objective of 'promoting scientific attitudes and awareness; as well as providing a forum for exchange of ideas and experiences among students in SEAMEO and invited associate member countries'. The success of the first congress had spearheaded subsequent SSYS events in line with the themes to promote "Science, Technology, Environment, and Society" (STES) education during the second SSYS in 1999 and the third SSYS in 2002. The Centre sponsors the registration of official delegates from all the participating SEAMEO member countries only but teacher and student delegates from Cambodia, Lao PDR, Myanmar, Vietnam and Timor Leste (CLMVT) are also provided with return airfare. The SSYS congresses that were conducted in 2004 and after were organised in accordance to UNESCO's Decade of Education for Sustainable Development, 2005 – 2014, and the fourth SSYS (8 to 10 March 2004) had the theme "Towards A Sustainable Future", the fifth SSYS (6 to 9 March 2006) with the theme "Sustainable Development for a Better World", the sixth SSYS (3 to 6 March 2008) with the theme "Sustainable Community Development through Science and Mathematics, and the seventh SSYS (2 to 5 March 2010) with the theme "Sustainable Solutions for the Local Community".

The Joint RECSAM-ICASE Regional Seminar on "The Way Forward for Science and Technology Education: Implication for Policy Makers" which was held from 16 - 19 February 2009 and the National Science and Mathematics Centres Meeting which was held on 25 and 26 June 2009 respectively at RECSAM are good examples of the occasional seminars convened by RECSAM. These seminars serve as forums to develop relevant activities for the region. For example, as a follow-up to these seminars, a working paper on Science and Mathematics Education Policy Benchmark: The Way Forward for Southeast Asia was prepared and forwarded to the SEAMEO Secretariat. The main aim of this working paper was to put forward a road map to improve the quality of Science and

Mathematics education in Southeast Asia and to seek support of the SEAMEO member countries for the drafting of the Science and Mathematics education policy benchmarks for Southeast Asia.

Addressing Technical and Allocative Efficiency Issues

One of the challenges of the centre is to provide programmes that are relevant and of sufficient quality for the region and beyond. This is a challenge because the SEAMEO region consists of countries with vast disparity within each country and among individual member countries. For example, Singapore is categorised as developed while Timor Leste is categorised under the least developed nation category. This is compounded by the need to deal with a number of countries that do not use English and with teachers and teacher educators that have different levels of competency in their subject.

Designing training programmes and research activities according to the needs of the member countries is thus a challenge. RECSAM has however formalised this process in the form of the Five-Year Plan and RECSAM will implement its 9th Five-Year Plan from July 2010 to June 2015. In formulating this plan, representative education experts from each member country and consultants from associate member countries were invited in 2009 to discuss and finalise the programmes deemed relevant for its members. It is during these Five-Year Plan meetings that issues like programme relevancy and potential impact are discussed and amicable solutions sought.

The detailed design of the Regular Courses is finalised one month before the commencement of the courses with input from lecturers of teacher training institutes or universities. While the core topics of the courses are facilitated by the centre's academic staff, external course consultants are also sourced mainly from the higher learning institutions. To provide international flavour, consultants from developed countries like Australia and New Zealand are also sourced to provide input during the course through training workshops. As not all participants have the opportunity to use the computer, ample opportunities are provided for them to equip themselves with ICT skills such that when they go back to their respective institutions, they have at least the basic skills to use the word processor and presentation tools as well as an idea of the use of ICT tools for teaching science and mathematics. To further enrich their experience in Malaysia, an educational study visit to Kuala Lumpur, the federal capital of Malaysia as well as Putra Jaya, the administrative capital of Malaysia is arranged. Feedback mechanisms like the weekly formative feedback (so that corrective measures can be taken immediately if there are problems), Pre- and Post-tests (to measure extent of learning), the summative Course Evaluation (to measure success of the course) are carried out. Summative Evaluations are also conducted for all major activities of the centre including conferences and reports produced.

All participants of the Regular Courses are expected to create The Multiplier Effect Document. It is essentially a document that spells out how the participant will disseminate

what was learnt in his/her country. With the Multiplier Effect document, the participant is in a better position to negotiate with education officials of his/her country, whether at school level or district level or higher to produce the optimal impact. An incentive in the form of a certificate of competence is given to the participant if he/she sends evidence of conducting the Multiplier Effect.

After the participants return to their respective countries, an impact study is conducted every three years to gather feedback on the impact Regular Courses had on improving practice in their respective countries. Funding constraints does not allow RECSAM staff to visit the participants to assess how the Regular Courses have impacted them. Instead a questionnaire is sent to each participant. A report is produced and reported to the Governing Board for further action. The Impact Study is currently the closest the centre is able to go towards determining how far its courses have impacted the participants.

Sustaining RECSAM as a Public Good Institution

As a centre that has been mandated to promote science and mathematics education among the SEAMEO member states, RECSAM faces a lot of challenges especially with regards to the limited funding. The Centre is hosted by the Malaysian government and receives a yearly grant from the government through the Ministry of Education. RECSAM has been receiving this yearly grant since 1995 when the centre was given autonomous status by the Malaysian government. With autonomy, the centre takes charge of its own administrative and financial matters. The grant is meant for staff remunerations and operations, which include maintenance and supplies. The salary scale of the staff at RECSAM is based on the civil services' salary scale with a 3% – 6 % increase. Each time the government revises the civil services' remunerations and allowances, RECSAM will follow suit to enable the centre to attract not only Malaysians but also foreign staff to work here as specialists. As a result, the amount spent on remunerations has increased over the years and by 2007, the centre has spent about 80% of the yearly grant on remunerations leaving an insufficient amount for operations.

Ever since RECSAM was awarded autonomous status in 1995, the centre had been generating its own revenue to be able to run its programmes to fulfil its mandate. In F.Y. 2006/2007, 6% of the expenditure came from the revenue which increased to 17% in F.Y. 2007/2008. However, when the Malaysian government awarded the centre an additional 42% in the yearly grant in 2008, we did not have to utilise our revenue and the revenue generated was channelled to the Reserve Fund to be kept for other use such as the physical development of the centre. It is estimated that for F.Y.2010/2011 to F.Y.2014/2015, about 9% to 19% of the centre's budget will have to be sourced from our revenue. RECSAM will need to generate more income not only to be able to carry out planned activities and programmes, but to continue to attract qualified people to work as specialists and maintain the quality of our trainings too.

Besides the yearly grant, RECSAM also receives an annual sum of US\$125,000 from the Malaysian government under the Special Educational Development Fund (SEDF) and this money is used to provide scholarships for science and mathematics educators from Southeast Asia to attend the one-month professional development Regular Courses at RECSAM. The scholarship includes the cost of airfare, tuition fees, book allowance, food allowance and accommodation. During the implementation of RECSAM's Eighth Five-Year Plan (SEAMEO RECSAM, 2003) from F.Y. 2005/2006 to F.Y. 2009/2010, nine Regular Courses were offered with one participant from each SEAMEO member country per course. However, in F.Y.2008/2009, the centre had to reduce the number of courses from nine to seven due to increasing operating costs, especially the airfares of the participants (SEAMEO RECSAM, 2007b). In 2006 too, Timor Leste became the newest member of SEAMEO and there were additional costs for nine more participants to be considered. For the Ninth Five-Year Plan (SEAMEO RECSAM, 2009) that will be implemented in July 2010 until June 2015, the Regular Courses will be further reduced from seven to four but the number of participants will remain at seventy-seven, the number that is offered for seven courses. This will be carried out by offering the scholarships to two participants per country for three of the courses.

To compensate for the limited number of participants who are able to attend courses at RECSAM, the SEDF is also used to send the centre's specialists to the SEAMEO member countries to conduct five-day courses. The In-Country Courses was started at the end of F.Y. 2005/2006 for two member countries but increased them to four in F.Y. 2008/2009. The In-Country courses will be further increased to six countries in July 2010 during the implementation of the Ninth Five-Year Plan. Apart from the Regular and In-Country courses, the SEDF is also meant to be used for staff exchange programmes and the annual Governing Board Meetings. Since the annual SEDF received is quite insufficient to be able to cover all the activities mentioned above, the Government of Malaysia has also deposited about US\$625,000 into an endowment fund that was set up in 1995 (SEAMEO RECSAM, 1995) and every year, the centre is only allowed to use the interest accrued from the principal sum to top up any shortage in that fund.

As a centre that was established under the wings of SEAMEO, RECSAM has enjoyed certain immunities and privileges accorded by the host government, and one of them is tax relief. In other words, the centre does not have to pay tax to the government for any revenue generated, and this has helped the centre to save a substantial amount of money every year. One way of generating revenue is by encouraging member countries to send more participants to attend the Regular Courses as fee-paying participants, and Indonesia and Thailand top the list. RECSAM also generates revenue by offering other training programmes apart from the Regular and In-Country Courses. These training programmes include the customised courses that are open to not only member countries but countries beyond the region as well. Table 1 shows the number of participants who attended RECSAM's Regular, In-Country and Customised Courses for the past 10 years taken from RECSAM's Annual Reports from F.Y. 2000/2001 to F.Y. 2009/2010.

Table 1. Number of participants in Regular, In-Country and Customised Courses

Fiscal Years	Regular Courses		In-Country Courses	Customised Courses
	Scholarship	Fee-Paying		
2000/2001	88	7	-	1061 (901)*
2001/2002	86	2	-	582*
2002/2003	90	11	-	546 (401)*
2003/2004	84	3	-	37
2004/2005	80	5	-	215
2005/2006	80	60 (58)**	74	90
2006/2007	88	19	79	225
2007/2008	89	44	181	111
2008/2009	60	1	214	302
2009/2010	72	2	233	220

* Malaysian teachers who attended the customised courses funded by the Malaysian Government on the World Bank ESSP Loan.

** Fee-Paying participants from Aceh and Bandung, Indonesia

As mentioned above, the centre also conducts training workshops facilitated by its own specialists or consultants from universities or training institutions worldwide, and these workshops are mainly catered to Malaysian teachers and teacher educators. Even though the training workshops are income-generating activities, free registration is usually given for a maximum of 50 places a year to Malaysian teachers.

RECSAM started the training of African educators five years ago under the Strengthening of Mathematics and Science education in Western, Eastern, Central and Southern Africa (SMASSE-WECSA) project. RECSAM was first approached by the JICA office in Kenya to enquire about training courses for their teacher educators in 2005. Five trainers from the Centre for Science, Mathematics and Technology Education (CEMESTE) in Kenya were sponsored by JICA as fee-paying participants in the Regular Courses in July 2005. This was followed by one-month customised courses for 40 Kenyan educators in August 2006, 24 Ugandan educators in June 2007, 40 Kenyan educators again in August 2007, and 28 Ugandan, Nigerian and Zambian educators in June 2008 and again in June 2009 for 32 of them. Two-week customised courses were also conducted for 13 Malawi Science trainers in February 2009 and 23 Mathematics and Science trainers in November 2009. Even though these programmes are considered as revenue generating activities, they have somehow propelled RECSAM to become a widely-known institution involved in south-south cooperation.

The centre also has very good facilities in the form of a hostel or Residence Halls with 119 rooms built in the early 1970's but was later expanded to 152 rooms and a 20-bedded dormitory was also added in 1997. Eight two-bedroom flats were also built in the same year to house some of the academic and management staff, especially for those who do not reside in Penang. In 2006, renovation works commenced to upgrade the Residence Halls and its name was changed to RECSAM International House and opened to the public. The occupancy rate of the International House has only reached an average

of 24% in 2009 and concerted attempts are being made to market it further. A swimming pool will be built soon to attract more customers to the International House. Other facilities that are rented out include the meeting and seminar rooms, conference hall, auditorium, and tennis courts. RECSAM also has a business complex with office space for rental and at present the complex houses the cafeteria, mini-market, photocopy shop, kindergarten, and offices.

Without the additional revenue, RECSAM will not be able to conduct all those activities that has been planned to promote science and mathematics education in the region. One big event that the Centre has been conducting since the late 1990's is the SEAMEO Search for Young Scientists (SSYS) Congress that is organised every two years and all the expenditure for this activity comes from the Centre's revenue. RECSAM used to organise the SEAMEO Mathematics Olympiad too but had to discontinue with the event due to shortage of funding. The Centre will not be able to upgrade and maintain its facilities too without the additional revenue, for example, purchasing of new computers, software, and equipment for the training labs, and upgrading the International House and all other facilities.

Future Directions

As argued in the previous sections, with escalating costs, especially on transportation, it has become increasingly difficult to run one of the major scholarship activities for the member countries, that is, the Regular Courses. As mentioned earlier, in the early nineties, the duration of the Regular Courses was three, six, and nine months but reduced to 6 weeks in 1997 (SEAMEO RECSAM, 1997) and currently further reduced to 4 weeks. Any duration less than one month may reduce its impact on the participants significantly and that includes lost opportunities for cultural exchanges and experiencing best practices. The Centre has realised the potential benefit of tripartite cooperation where a funding country or agency works with RECSAM to offer scholarships for its training programmes. Currently the Centre's experience with such cooperation is with both JICA and the Colombo Plan Secretariat. It is hoped that in future the Centre may be able to adapt this tripartite cooperation mode with some other funding agencies to offer more help to the least developed SEAMEO member countries.

In light of the dearth of research on science and mathematics education at the regional level, RECSAM will take the initiative to increase research and development in this area at the basic level. It is envisaged that research and development at the regional level will contribute towards policy and pedagogy changes that can affect the improvement of the quality of science and mathematics education in the region. This will often involve large sums of money and since funding from international agencies are difficult to procure due to keen competition for a limited resource as well as the requirement that funding is contingent on fulfilling the needs of the agency rather than the region. As such RECSAM has set up the 'Research and Development Fund' since 1st July

2009 using 5% of the revenue every year for this purpose. With such a funding mechanism it is hoped that the centre will be able to carry out its research and development activities with minimum funding constraints.

The Centre has in recent years looked at ways to measure progress in the improvement of science and mathematics education at the regional level. This will require the formulation of benchmarks and some form of comparison tests in science and mathematics. One way is to develop some form of Science and Mathematics Education Standards for the region. This will be done by examining the science and mathematics standards of various developed and developing countries. A set of standards will then be formulated with consultation among experts and representatives of the member ministries of education. A set of standards of this nature would serve as a base for each country to improve, a sort of “zone of proximal development”.

Another contribution towards regional improvement of science and mathematics education will be done through the Southeast Asian Regional Assessment (SEARA) on Mathematics and Science Competencies of Grade 7 Students. SEARA is an effort to map the science and mathematics competencies of the students in the region. It will be similar to the Trends in Mathematics and Science Study (TIMSS) and the Programme for International Student Assessment (PISA) but it will be done on a much smaller scale. SEARA will enable the SEAMEO member countries to determine the achievement levels of science and mathematics education in their own countries in relation to the other member countries in the region and strive towards achieving the higher benchmarks.

Conclusion

The wisdom of the founding education ministers of SEAMEO to locate its regional centres in its member countries has in a way paid off because all the centres have the support of the host government. This is true for RECSAM which is grateful for the support of the Ministry of Education Malaysia. RECSAM has, in recent years, faced many difficult challenges ranging from financial to human resources and yet continue to face the challenge of reinventing itself so that the impact for the region can be maximised. However, in the spirit of SEAMEO cooperation together with support from the associate and affiliate member countries and especially the Ministry of Education Malaysia, we see RECSAM continuously shaping itself to provide optimal support in the development of science and mathematics of member countries.

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Effective Aid Modality for Funding “Soft” Investments and Global Public Goods in Education: The Norwegian Education Trust Fund (NETF)¹

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Abstract

Many donor countries have established special “Trust Funds” located in international agencies to fund analytical work, policy development and various types of regional and global public good functions in the education sector. This article describes one such Fund -- The Norwegian Education Trust Fund (NETF) -- set up by Norway in 1998 and managed by the World Bank. Over its ten years existence, the Fund disbursed US\$46 million to support analytical work, policy formulation and preparation of education sector program in Sub-Saharan African countries as well as a variety of regional activities benefitting these countries. This article describes the rationale for establishing this Fund, what it financed and why, what it achieved, and what lessons can be drawn with respect to the use of this type of mechanism to provide targeted support of this type.

Introduction

This special issue of the JICE explores ways of increasing the effectiveness of education aid through more strategic use to enhance the aid’s catalytic impact on national as well as international education development goals. For *individual countries*, this means rethinking the distribution of aid between different levels and types of education as well as between different purposes to ensure that adequate attention is given to various types of “soft” investments, such as analytical work, piloting innovations, policy development, and capacity building. At the *international level*, this means reassessing the rationale for the very unequal distribution of aid among countries, as well as giving higher priority for support to develop and maintain partnerships, networks, and institutions producing regional and global *public good functions* in the education sector. This latter includes using more aid for, for example, conducting and/or synthesizing national education research and good practices experiences and making these internationally available; supporting forums and networks for regional and international dialogue and knowledge

¹ At the time the NETF was created and implemented, Mr. Seim was Senior Adviser in the Norwegian Ministry of Foreign Affairs, and Mr. Fredriksen was Director for Human Development in the Africa Region of the World Bank.

exchange on education policy issues; and promoting capacity-building, technical support, and peer learning through south-south/south-north technical cooperation.

The Overview article at the start of this publication discusses key factors constraining aid allocation to these types of activities. Suffice it to underline here that there is little concerted international effort to monitor the aid allocation by education sub-sector, purpose, or country resulting from these processes. This is in particular the case for the allocation of aid to “soft” investments at the country level and, especially, to partnerships, networks, and institutions producing regional and global public good functions. The limited attention paid by the international education aid community to these latter aspects of aid allocation is of great concern at a time when rapid globalization, greater international “openness”, and the ICT revolution have radically increased the scope for drawing positive “cross-border externalities” from national good practices and technical expertise, turning these into potential global public goods.

However, despite the less than stellar track record of the international aid architecture in addressing global aid allocation and utilization issues, some individual donor countries have tried various mechanisms to address the type of funding issues highlighted above. One approach is to channel some of their ODA through special “Trust Funds” located in international agencies and earmarked for various “soft” investments and public good functions. Japan, the Netherlands, Norway and the UK are among the donor countries that have shown particular willingness to take this step, by establishing Trust Funds managed by the World Bank or other agencies such as UNICEF, UNDP and UNESCO, to support the development of knowledge, policy, and capacity at the national, regional, and global levels. The Fund that is the subject of this article – The Norwegian Education Trust Fund (NETF) – is one particularly notable example². This article describes the rationale for setting up this Fund, what it financed and why, what it achieved over its approximately ten years of existence, and what lessons can be drawn with respect to the use of this type of mechanism to target national and international “soft” investment in the education sector.

Rationale for establishing the NETF

The NETF was established in January 1998 following an agreement between The Norwegian Ministry of Foreign Affairs (NMFA) and the Africa Region Human Development Department (AFTHD) of the World Bank. The Fund’s main aim was to help Sub-Saharan African countries (SSA) address factors that since the early 1980s had stalled the strong progress towards Universal Primary Education (UPE) achieved during the 1960s and the 1970s. For example, despite an almost doubling of the school-

² Norway has been particularly generous in setting up this type of funds, often at the World Bank. Over the past three decades, Norway has used such funds to support analytical work, policy development and various other types of capacity-building in most sectors key to national development, environmental protection, and poverty reduction, with a special focus on the social sectors, including education.

age population between 1960 and 1980, SSA’s Gross Enrollment Ratio (GER) in primary education grew from about 45% in 1960 to 80% in 1980, almost quadrupling enrollment. However, the next 20 years were marked by stagnation and decline in many countries. The GER declined from 80% in 1980 to 72% in 1992, and was only slowly increasing, reaching about 77% in the school-year 1997-98, the year the NETF was established.

The establishment of the NETF was based on the conviction that a combination of low political commitment to primary education, poorly designed policies, and weak institutions played a determining role in causing this setback in the progress towards UPE. The negative impact of these factors was reinforced by deteriorating economic conditions, causing stagnation in public education budgets and rising school fees. These developments caused serious concerns for both the NMFA and the World Bank. Quality basic education for all was considered a pre-requisite for achieving poverty reduction, which was the overarching objective of both institutions’ development assistance. Therefore, education stagnation was seen as having wide-ranging negative impacts on the effectiveness of development assistance to all sectors and, more generally, on the Region’s ability to address deteriorating economic and social conditions.

The mutual dependency between education and economic development also meant that resumption of economic growth was considered crucial to generating the public and private funding needed to resume education growth, to provide the employment sought by graduates and, more generally, to derive the full development benefits of education investments. In turn, this would require better macro-economic policies, more stable political environments with open participatory processes, improved business climate, and well-functioning labor markets. Weaknesses in these areas had reduced the development impact of the education investments that governments, parents, and external partners had made during the 1980s and 1990s.

However, from the end of the cold war in the early 1990s, SSA started to make progress in terms of better macroeconomic policies and more open and participatory political processes. Given these developments, and the conviction that the impact of education aid depended crucially on improved education policies, the team managing the World Bank’s support for education in SSA believed that the opportunities for development partners to support the type of education reforms required to resume education growth had improved considerably by the mid-1990s. But preparation of such reforms would require a major effort on the part of SSA countries, both in terms of *improving the technical quality of their education policies and programs and developing a broad national consensus on the policies adapted to increase their likelihood of implementation*. Major improvements in these two areas were considered by both the NMFA and the World Bank to be essential to break out of the cycle of education stagnation. But to achieve such improvements required stronger institutional capacity in most countries. Severe budget constraints had prevented countries from maintaining the basic education planning and management capacity developed during the first two decades after independence. And the political economy of education reform, often difficult in the

best of circumstances in poor and rich countries alike, had in many ways grown very difficult during the long period of economic decline. Therefore, in addition to building technical expertise to develop high-quality sector programs, ministries of education needed also to strengthen their ability to develop national consensus on these programs to facilitate their implementation.

In short, by the mid-1990s, conditions for breaking the vicious cycle of education stagnation in SSA were improving. *The main rationale for establishing the NETF was to provide flexible funding to facilitate this process.* The new government that was elected in Norway in 1997 had made education a development policy priority, and the new Minister of Development Cooperation declared that education was “Job No 1” and established a target of allocating 15% of Norwegian ODA to primary education. The new government also had a positive attitude to cooperation with the World Bank, realizing that the Bank was the only global institution with the analytical capacity necessary to take on this work, and that the new president of the Bank, James Wolfensohn, had a strong commitment to the reform process. From a broader perspective, NETF could therefore be seen as supporting the evolution of the Comprehensive Development Framework and, later, the Poverty Reduction Strategy Papers (PRSPs).

Summary of content of programs supported by the NETF³

About US\$46 million was disbursed from the NETF during its approximately ten years of existence in support of the Fund’s overarching objective: *To support the preparation of high-quality, sustainable, and nationally-owned education sector development programs.* Such programs were considered to constitute the foundation for the national institutional processes in the education sector by providing the mechanisms through which governments plan, negotiate, and solve problems on a continuous basis. These programs should, in turn, be integrated into other core government frameworks such as the annual budget, the national development plan and poverty reduction strategy, and the medium term expenditure framework.

Within this general framework, the NETF provided *targeted funding* in support of three interrelated objectives:

(a) Promoting regional knowledge generation and sharing

At the time of the creation of the Fund, a fair amount of external financing was available for SSA countries for the preparation of investment programs in areas such as civil works, teacher training, and pedagogical inputs⁴. However, then (as now) this

³ This section draws on the last Annual Report prepared for the annual consultations on NETF implementation between the NMFA and the World Bank, organized in Oslo in October 2005 (World Bank 2005, pp. 4-6).

⁴ For example, by pre-financing such work via IDA credits under preparation through the IDA “Project Preparation Facility” (PPF).

was generally not the case for “soft investments,” such as multi-country knowledge-sharing activities through (i) synthesizing lessons learned from ongoing reform efforts in developing countries, including identifying barriers to education growth and knowledge on the effectiveness of various measures in different national contexts; and (ii) promoting “per learning” through knowledge-sharing and cooperation among education politicians and practitioners in African countries. These types of activities were considered especially important in SSA at the time that the NETF was established because many of the policy reforms necessary to address the factors causing stagnation were perceived as controversial, and evidence in their support was often poorly documented and presented.

The NETF supported the aforementioned types of activities by funding the preparation of *regional studies and strategies* with work mostly organized around *targeted focus areas* (see below) that had been identified as representing major constraints on achieving UPE. Much of this work was led by 4-6 specialists funded under the NETF and mostly located at the World Bank⁵, generally working in close cooperation with other institutions but especially with technical staff in the concerned countries. As further discussed later, one of the guiding principles for allocation of NETF funds was to promote implementation approaches that would help build national capacity.

The outcome of this work proved particularly useful in stimulating discussions on essential policy reforms among African policymakers as well as with their external partners. The most prominent programs led by the World Bank included:

- Analytical work to underpin preparation of sector programs, resulting in the preparation of “Country Status Reports” documenting the current education situation and exploring options to accelerate education growth. To build capacity and ownership, these reports were prepared in close cooperation with national teams.
- Major work programs on, respectively, “Education and HIV/AIDS”; girls’ education; literacy; skills development; and tertiary education. These included both regional and country-specific studies as well as technical support to countries to help formulate policies and develop programs in these areas.
- A major studies program on “Secondary Education in Africa” (SEIA), including three all-African conferences.
- Analytical work and, especially, development of a multi-agency network on ECD, and support for two all-Africa conferences on ECD⁶.

Areas of work led by other partners include: “Education Quality” led by the Association for the Development of Education in Africa (ADEA), development of an

⁵ The NETF also funded some long-term consultants to support such work, located at UNESCO’s Paris and Dakar offices, as well one specialist located in a World Bank country office in East Africa to support countries in developing programs to address HIV/AIDS issues in the education sector.

⁶ Refer to the article by Garcia and Pence in this publication.

“Essential Learning Package” led by UNICEF, work on teachers conducted in cooperation with ADEA and Education International (the Global Federation of Teacher Unions), preparation and organization of an all-African conference on literacy conducted by the UNESCO’s Institute for Life-long Learning (UIL), and work on developing a framework for collecting statistics on disabled children led by the OECD. Smith and Addy (2007) lists 117 national and regional studies published with support from the NETF⁷. Many of these fed into the partnership and consensus-building activities discussed below. About 19.8% of NETF’s resources were used in support of this objective.

(b) Strengthening political commitment, consensus and ownership

Part of the rationale for establishing the NETF was to help enhance the level of political commitment and consensus considered essential to advancing the type of reforms needed to accelerate the progress towards quality UPE. Political commitment is manifested in resolve by key political leaders, as well as in consensus among key stakeholders on priorities and on the key programs to be implemented to translate these priorities into actions on the ground.

At the *country level*, the NETF funded activities aimed to promote dialogue among different agencies within the government as well as between government agencies and key stakeholders outside the government, such as teacher unions, parents, and local communities. At the *regional level*, NETF supported dialogue and knowledge-exchange among African countries as well as with countries in other regions⁸, and among them and their development partners in order to deal with education development issues in a comprehensive and holistic manner.

The NETF supported the above type of activities by funding networking, partnerships, and knowledge-sharing activities such as regional and sub-regional seminars, workshops, and conferences. These activities aimed to help: (i) define and formulate policies and strategies for technically sound and financially sustainable programs; (ii) promote knowledge-sharing among countries about lessons learned in implementing such programs; and (iii) facilitate dialogue among key national education stakeholders to build consensus on the reforms required. Examples include support for key African regional partnerships such as ADEA (a partnership between African ministers of education and education donors), FAPED (a network of African Parliamentarians for Education), FAWA (an international NGO promoting girls’ education in Africa), and COMED (a network for African education journalists and communications specialists). Furthermore, the Fund

⁷ Verspoor et al. (2008) summarizes the work on SEIA, Bakilana et al. (2005) presents work on Education and HIV/AIDS also supported by the NETF, Subbarao and Coury (2004) review interventions to help AIDS orphans, and Verspoor (2005) summarizes the work on quality conducted by ADEA and supported by NETF.

⁸ This included several study tours for African policy makers to Asia and Latin America. Fredriksen and Tan (2008) reviews the outcomes and publishes background papers on education development in Ireland, Korea, Singapore, Thailand, and Vietnam, as well as for Sub-Saharan Africa, prepared for a study tour to Singapore and Vietnam.

promoted closer cooperation with UN agencies such as UNICEF, UNESCO, UNDP and ECA⁹. Funding for this objective became increasingly important during NETF’s existence because regional partnership activities of this type are generally given low priority in donor financing. About 30.5% of the Fund’s total resources were used in support of this objective.

(c) Supporting technical and analytical capacity in the education sector.

Education sector development must be driven by national institutions that have the capacity to implement evidenced-based policies to address sector issues continuously as they occur, as well as to ensure integration of education into the other key national policy and planning processes. The capacity to do this is still weak in most SSA countries. The technical and analytical work needed to prepare high-quality education policies and investments programs is substantial and diverse, often resulting in the need to supplement the existing government capacity with external or local expertise. The NETF made a deliberate effort to provide such assistance in a way that helped build national capacity through mobilizing, motivating, and strengthening existing local capacity rather than substituting for such capacity through the use of external expertise. Furthermore, since education sector programs need to be integrated in the broader national planning framework, the NETF also helped fund technical capacity to conduct the analytical work in the education sector needed to underpin other national programs, such as debt reduction under the Highly Indebted Poor Country Initiative (HIPC), and the development of Poverty Reduction Strategies and Medium Term Expenditure Frameworks.

The NETF supported the aforementioned activities by funding work led by national teams. The World Bank’s education task team leader in the country was the key interlocutor between the country team and the NETF, organizing the support. As previously noted, one of the guiding principles for providing such support was to follow approaches that would as far as possible mobilize, strengthen, and utilize existing national capacity. The specific activities varied from support for basic analytic work and local workshops, to highly technical and specialized work, depending on the stage of the education sector program and the capacity needs of the country. Once the education sector program was completed and appraised, the World Bank along with other development partners provided financial support for program implementation. NETF funding was limited to program preparation, capacity-building, and consultative processes. About 46.1% of the Fund’s total resources were used in support of this objective¹⁰.

⁹ The NETF supported the education component of the UN Special Initiative for Africa (UNZIA) led by UNDP and the UN Economic Commission for Africa (ECA).

¹⁰ Thus, in total, 96.4% of NETF funding was used in support of the three objectives described above. The remaining 3.6% were used on NETF management, primarily to support program coordination, resource management, and accounting staff. This low level of administrative costs was possible because many NETF management activities piggy-backed on activities funded under the World Bank’s regular budget.

Some lessons from the NETF experience

During its existence, the NETF underwent one internal (2001) and two external (2003, 2007) evaluations¹¹. All three were very positive with respect to the impact of the Fund. But they also recommended ways of enhancing the effectiveness of the Fund, e.g., regarding the areas targeted for support and the modalities used in providing the support. In particular, the 2007 evaluation presented a number of recommendations for future funding of this type and, especially, for the FTI Education Program Development Fund (EPDF). The EPDF was modeled on the NETF and later received Norwegian funding for the type of support that had been provided under the NETF¹².

The discussion below focuses on the findings of these evaluations with respect to one of the key interests of this special issue of the JICE, i.e., enhancing education aid effectiveness by giving higher priority to “soft” education investments at both the national and international levels, including capacity-building and support for regional and global public good functions. The discussion will focus on lessons from NETF with respect to three different aspects: (a) targeting of aid on particular countries, areas, and purposes; (b) funding modalities used to ensure targeting; and (c) how to ensure funding additionality and sustainability for the targeted activities.

(a) Targeting of aid

As discussed in the Overview article, views differ on whether targeting of aid – especially within countries – can be done effectively, because of issues related to obtaining “additionality” through targeting due to the “fungibility” of money, or even whether such targeting is “right,” because the areas targeted may reflect more closely the priorities of the donor than those of the recipient country. However, as already explained, the main rationale for establishing the NETF was the belief that, in order to break out of the education stagnation affecting SSA throughout most of the 1980s and 1990s, major barriers hampering education growth needed to be removed. Therefore, *the very objective for establishing NETF was to provide funding targeted on helping countries remove these barriers*. In particular, NETF funding targeted:

- (i) “Low enrollment countries”: Initially, funding was limited to the 16 SSA countries¹³ that had GER below 60% in 1995. Funding was extended to all

¹¹ See, respectively, Ndoye (2001), Norwegian Ministry of Foreign Affairs (2003), and Smith and Addy (2007).

¹² The NMFA was a strong supporter of the FTI and did not want to maintain a bilateral fund parallel to the EPDF after that multi-donor fund was established. However, because the FTI and the EPDF focus on basic education, the NMFA established a special Trust Fund to support the type of work initiated under the NETF in post-primary education. That fund still exists.

¹³ Angola, Burkina Faso, Chad, Djibouti, Eritria, Ethiopia, Guinea, Guinea Bissau, Liberia, Mali, Mozambique, Niger, Rwanda, Senegal, Sierra Leone, and Somalia. These countries were given special emphasis under the UN Special Initiative for Africa launch by the UN, managed by the ECA and UNDP and supported by the World Bank. AFTHD prepared a special strategy document outlining its support for

SSA countries after program development had been initiated in most of these 16 countries. During the first four years of its existence, the Fund supported preparation of sector programs in 13 of these 16 countries. Although it is impossible to identify the impact of this support, it is worth noting that during the four-year period from 1998/99 to 2002/03 the average GER in primary education for 15 of these 16 countries¹⁴ increased by 21 percentage points (from 64% to 85%). All but two countries also saw substantial progress towards gender-parity in primary education.

- (ii) “Soft investments” at the national level: This included various types of capacity-building through support for analytical work; policy development and program preparation; and dialogue among key education stakeholders to develop consensus on, and ownership of, national programs and policies.
- (iii) “Soft investments” at the regional level: This included sponsoring a number of partnerships, multi-country activities, study tours, and other “public good” functions to promote peer learning and ensure that national programs were informed by good practice experiences from inside and outside Africa.
- (iv) “Critical bottleneck areas”: Slow progress in certain areas was considered a particular impediment to the progress towards UPE. Therefore, NETF targeted funding of analytical work and policy development to help remove these constraints. Initially, three areas were targeted: girls’ education, adult literacy, and ECD. Later on, in order to support preparation of comprehensive education sector programs, the areas of special focus were extended to include education quality, education and health (with special focus on the interaction between education and HIV/AIDS), secondary education, skills development, and tertiary education.
- (v) Provision of technical support: The NETF also targeted the provision of specialized technical support to national teams. As already mentioned, this was done by funding specialists located in the World Bank to enhance the Bank’s capacity to support national teams in the preparation of sector programs, as well as to conduct regional analytical work and support partnerships and knowledge-sharing. Three different areas were targeted. First, three subject specialists were recruited to support work targeting girls’ education, adult literacy, and “education and HIV/AIDS”. Later on, one specialist on textbooks and one on higher education were added. Second, two specialists were recruited to help national teams enhance the quality of the basic quantitative work required to

this initiative, see World Bank (1998).

¹⁴ Only Somalia received no support because of the civil war.

prepare national education sector programs¹⁵. Third, considering the emphasis on promoting constructive and credible dialogue on policies and improving the political economy of education reform, the NETF funded a position for a senior African education professional with high credibility throughout Africa to play a leadership role in assisting World Bank education staff in conducting policy dialogue on education reforms¹⁶.

Thus, NETF funding remained targeted during the Fund's existence, but the targeting shifted over time and broadened considerably in some areas, especially with respect to countries and special areas of focus. As a result, when the Fund closed, it had supported preparation of education sector programs in 41 SSA countries. In addition, it had supported a variety of regional and multi-country activities designed to improve the quality of education policy and build national capacity through knowledge-exchange, peer learning, and national consensus-building on policies.

All three evaluations of the NETF found this *targeted funding* to have been very beneficial to countries. Ndoye (2001) reviewed the experience with NETF after three years of existence and concluded that:

“NETF has responded to the needs and priorities of educational development in Africa. The various activities carried out in this context, sub-regional workshops and support for program preparation, have generated impressive results in terms of outputs and impacts on the development of sub-regional and local capacities. Programs drawn up with this support are the vehicle of new ambitions, visions and commitments that reflect a strong will on the part of political leadership to accelerate the development of education. The policies and reforms that constitute its substructure are increasingly the subject of exchange among the actors involved, particularly between governments, teachers' unions, parent associations and NGOs. In these discussions, shared perceptions are being constructed; they do not preclude divergences of views but instead facilitate new partnerships. It also appears that aid for the development of education in Africa should focus more on those processes that influence attitudes and capacities, as well as relationships of actors in the sector who determine the success or failure of education programs and projects. This type of support deserves to be continued and deepened in order to expand and strengthen the gains of African countries” (pages 24-25).

¹⁵ This includes preparation of Country Status Reports (CSRs), which evolved to become a standard analytical document providing the type of quantitative data and simulation of cost and financing required to prepare education sector programs. The NETF also supported preparations of CSRs for the health sector.

¹⁶ Over a five-year period, this position was held successively by two former African education ministers, both highly credible because of success in their own countries and well-known to other ministers and donor staff.

The 2003 external evaluation was also very positive with respect to the impact of the Fund in general. As regards the targeting, it concluded:

“The NETF has supported the preparation of education sector development programs in almost all the 16 low enrollment countries which it targeted. ... Major work has been done to dismantle barriers to basic education and girls’ education, adult literacy, early childhood development, and school health and nutrition. Work has also been done in post-primary and skills education, and on HIV/AIDS. Many of these issues are now mainstreamed in sector development programs. There has been considerable knowledge production....All the issues dealt with through the NETF are highly relevant from the perspective of African stakeholders” (Norwegian Ministry of Foreign Affairs, 2003, p. 41).

The 2007 external evaluation concluded that:

“The impact of the NETF has been felt far beyond what was originally envisaged for a relatively small and flexible contribution to addressing the challenges of getting more children into a worthwhile school experience and ensuring that they benefit from it. The first and most obvious outcome has been the development of better quality, more evidence-based education policies and programs in a range of African countries. This has contributed considerably to the remarkable turnaround in education growth observed since year 2000. Obviously Dakar and the international commitment deriving from that seminal process has been the main driver of renewed investments and commitments to universal basic education for Sub-Saharan Africa. But NETF predated the Dakar process and showed the way in terms of its focus on sound policies and planning frameworks, knowledge sharing and regional cooperation.

A second important impact of the NETF was its help in improving the quality of advice and knowledge available to partner countries and in strengthening the synergies among the external partners. ...

Although the FTI was not part of the original framework for the NETF, the Fund helped finance most of the analytical work which underpinned the setting up of the Fast Track Initiative. If Norwegian development aid to education had achieved little else over the past five or six years this outcome would represent a major contribution to the push for EFA.

In a nutshell the Fund can point to its impact on better plans leading to improved enrollment and retention rates, better analysis, better technical capacity in partner countries, better regional cooperation and sharing among African neighbors and

integrated national efforts to get children into an effective school. The perceived impact of the NETF is reflected in the following statement of an informant: *In my view, NETF has been the most valuable trust fund for African education*” (Smith and Addy, 2007, pages 48-49).

Finally, the last regular Annual Report on NETF prepared by the World Bank noted that (World Bank 2005, pp. 10-11):

“...it is the assessment of the World Bank staff that the NETF has in particular strengthened and been additional in the following areas:

i) Stimulation of regional... analytical work and policy workshops in a wide range of areas. There is still scarcity of funding for such activities, in particular those that are part of larger analytical and collaborative work-programs and that are being followed up at country level... ii) Partnerships, especially with ADEA, UNESCO and UNICEF, but also with other organizations such as EI and CONFEMEN. ... The NETF funding has enabled much closer collaboration through the support of joint work-programs ... iii) Various types of capacity-building for NGO-type of organizations... iv) Strengthened work in neglected areas, which became target areas for the NETF support... v) Greater focus on resolving implementation bottlenecks, through the particular work programs developed on teachers, textbooks, education quality, education management... ; vi) Finally, the Fund has stimulated a considerable amount of analytical work at the country level, especially through the CSRs, and capacity building in the way these activities were conducted, including the policy workshops.”

In short, while each of the two broad types of funding provided by the NETF – country-specific support and support for multi-country/“global public good” activities – was judged very valuable, the *synergy between the two types of activities was considered important as well*. In other words, support for regional partnerships and inter-country collaborative activities enhanced the impact of the country-specific activities. This point is important because, to the extent this is correct, the severe shortage of funding for the former activities is likely to constrain the effectiveness of the latter.

(b) Funding Modalities

AFTHD managed the NETF based on a framework agreement with the NMFA. Use of the funds and Fund replenishment were reviewed annually at a consultation meeting in Oslo between the Ministry and the World Bank. The two institutions also maintained continuous contact on any issues arising between consultation meetings. To increase the impact of NETF funding, the following principles were established to guide fund allocation:

- *Seek additionality* by avoiding substituting for other available financing. Cost-sharing with other development partners and beneficiary countries was considered important in creating shared ownership for funded activities, facilitating mobilization of resources for sector program implementation once prepared, and helping leverage NETF resources, thus increasing the number of activities NETF could fund.
- *Support local capacity-building* by prioritizing implementation approaches conducted by the countries themselves, using African professionals and institutions as much as possible.
- *Promote synergy with the work of other agencies* by conducting most of the knowledge-sharing activities jointly with other agencies.
- *Ensure follow-up and implementation of the NETF-financed work* by ensuring that NETF-supported workshops were developed in cooperation with country officials and the operational staff of the World Bank and other external partners.

All of the three evaluations underlined that speed and flexibility in managing the funding approval process constituted a key aspect contributing to NETF’s success. As regards *speed*, it usually took less than one week to review and decide on requests for support for country-specific activities. Decisions on partnership activities usually took some more time because they required a more involved consultation process. As regards *flexibility*, contrary to many other trust funds, applications for support could be made at any time, not only on specific dates. This is important because funding needs that arise during preparation of sector programs are not always easy to foresee months ahead of time. Together, speed and flexibility helped minimize transaction costs for those implementing NETF-funded activities. This is important since technical staff in countries and international agencies are often over-stretched, and transaction costs in obtaining funding under trust funds are often quite high.

(c) Additionality and sustainability

A key assumption behind the NETF was that preparation of high-quality sector programs would help countries mobilize *additional funding* for education to accelerate the progress towards UPE. This was based on the experience of World Bank staff that, other things being equal, better prepared and managed education programs increase the education sector’s chances of attracting more domestic as well as external funding.

It is not possible to assess the extent to which NETF’s contribution to better quality sector programs became a catalyst for the mobilization of more domestic and external funding for education. However, it is a fact that both of these sources of funding increased markedly during the existence of the NETF. Thus, education budgets in SSA grew annually by about 9% between 1999 and 2007, compared to only about 1% annually between 1980 and 1999. Approximately two-thirds of this increase was due to economic growth; the rest derived from increased political priority for education, as reflected by the

fact that the share of GNP devoted to education increased from 3.5% in 1999 to 4.5% in 2007¹⁷. And disbursement of aid for education increased by almost 16% annually during the period 1999-2006.

When it comes to the *sustainability* of the activities targeted under the NETF, the prospects are likely to be quite different depending on the specific type of activities targeted:

- (i) “Low enrollment countries”: As already explained, funding was initially limited to 16 SSA countries that had GER below 60% in 1995. Disregarding Somalia, Niger was the only country with a GER below 60% in 2007. While there is need for continued funding to improve policies and programs, especially in post-conflict countries, the type of support provided by the NETF has been continued under the EPDF and expanded to other developing regions. Such funding is also available from other external sources.
- (ii) “Soft investments” at the national level: Provision of support for such investments to build capacity was a key objective of the NETF. Despite the progress towards more evidence-base policies and programs, weak institutional capacity continues to be a problem in SSA countries. As discussed in the Overview article, in order to change this it will be necessary to develop a new capacity-building strategy going beyond developing individual technical skills to promoting institutional and organizational change so that existing capacity can be better mobilized, strengthened, utilized, and retained. This will require changes in approach by both aid recipient countries and development agencies.
- (iii) “Soft investments” at the regional level: The sustainability of some of the activities funded by the NETF to promote “public good” functions, such as regional studies and peer learning through regional networks and south-south cooperation, is less certain. Much of the regional analytical work related to specific areas such as education quality, ECD, skills development, and higher education helped create an important momentum that continues through other funding. On the other hand, some of the partnership activities have been difficult to maintain due to funding difficulties.
- (iv) “Critical bottleneck areas”: Funding for targeted work needs to be continued, though focus areas should evolve to respond to changes in aid priorities over the past decade. First, as regards reaching UPE, targeted programs need to be developed and implemented to enroll and retain at school those who are still out-

¹⁷ In East Asia, the share remained at 3.6% in both years; in Latin America, it declined from 4.5% in 1999 to 4.1% in 2007; and in South Asia, it increased from 2.9% to 3.8% (UNESCO 2010).

of-school. Second, the progress towards UPE has created strong demand pressure on post-primary education. Thus, the type of analytical work supported by the NETF on secondary education, TVET, and tertiary education need to continue¹⁸. Third, as pointed out in successive EFA Global Monitoring Reports, despite the progress towards UPE, progress continues to be slow towards the other five EFA goals. Some of the analytical and policy work launched under NETF has been continued with EPDF funding, but much more systematic attention is required, especially for regional work.

- (v) Provision of technical support: As discussed in the Overview article, the capacity of aid agencies to provide such support is declining, and, as noted in the last NETF Annual Report, because of budget constraints, “...it has proven difficult to maintain in the World Bank staff capacity built through seed money from the NETF in areas such as literacy, girls’ education, TVET.” The report also notes that: “There is a clear tendency for the World Bank to become increasingly dependent on trust funds to finance basic analytical work and advisory services to the countries. This is particularly true at the regional level, as the institution’s budget is almost exclusively tied to country programs, squeezing regional and analytical work programs. However, the World Bank has also become dependent upon trust funds to provide countries with direct assistance to facilitate policy dialogue, knowledge generation and sharing and preparing and implementing of sector programs. This development is exacerbated by the move towards budget support” (World Bank 2005, pp. 11-12).

In short, the NETF helped initiate many processes that facilitated the resumption of rapid progress towards UPE in SSA over the past decade. A special feature of NETF was its flexible and rapid response to support analytical work, partnerships, innovation, and “south/south” or triangular cooperation. In the present education aid architecture, there continues to be a shortage of funds for these types of activities. Clearly, to cater to the 72 million children still out of primary school, and to develop the skills needed to sustain the nascent economic growth in low-income countries, new and innovative approaches will be required. The most marginalized and disadvantaged children cannot be attracted to school by simply providing a school desk. Nor will expansion of traditional vocational and technical training meet the skill needs of the modern, knowledge-based economy. Sustainable solutions will call for innovation, the utilization of new technologies, the ability to adapt international good practices to the local context, and the linking of interventions to broader social protection programs. In turn, this will require that low-

¹⁸ Hopefully, the May 2010 decision of the FTI Board to extend funding under the “new” EPDF – The Policy and Capacity for Education (PACE) program – to the whole education sector will help in this regard. Also, as already mentioned, when NETF closed, Norway established a new trust fund to support work on post-primary education.

income countries have better access to international knowledge assets and ability to learn from experiences and peers in other countries.

Concluding Remarks

The international education aid community is still struggling to develop effective funding mechanisms to provide the type of funding provided by the NETF in a predictable and flexible way, and at a larger scale. Existing mechanisms remain very fragmented, and transaction costs in accessing them are high. The FTI PACE program may respond to part of this need, but it is still too early to tell how this will develop.

More generally, the global education aid architecture has a poor track record in addressing issues related to the *efficient allocation* of education aid. This limits the overall effectiveness of such aid in promoting national and international development goals. In particular, there is an urgent need to review how the institutions and networks designed to provide regional and global public goods can be revitalized – in terms of governance, effectiveness, and funding – in order to increase their effectiveness. At a time when the economic downturn may lead to further stagnation or decline in aid, when aid fatigue is growing, and when there are new demands for ODA arising from, e.g., climate change and food security needs, it is more urgent than ever to ensure that *whatever aid is available is used as effectively as possible*.

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Higher Education Aid: Setting Priorities and Improving Effectiveness

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Abstract

Higher education aid, initially, was primarily used to provide graduate training in donor countries. Later, aid money was invested to establish new institutions or to strengthen existing institutions in the developing world. With criticisms of brain drain, mounting unemployment of the educated, and the emerging priority of Education for All programs, donor support to higher education declined from the 1980s. However, higher education is back on the agenda of the donors in this millennium. The analysis in this paper shows that higher education aid either remains concentrated in selected countries with expanded higher education systems, or is fragmented and spread too thinly mostly in countries with less expanded higher education systems. The paper argues for aid to support the higher education sector in implementing national policies and institution-wide improvement rather than focusing on selected faculties for targeted intervention. This may be a way of improving aid effectiveness in higher education.

Introduction

Development assistance increased rapidly in the 1960s. Education was a beneficiary of expanding external aid. Multilateral organizations, bilateral agencies, and private foundations were active in providing higher education aid to developing countries. Initially, higher education aid was primarily used to provide graduate training taking place mostly in donor countries. Later, aid also focused on establishing new institutions and strengthening the existing institutions of higher education to provide tertiary education in the aid recipient countries.

During the period of structural adjustment, national investment priorities and international commitment moved from tertiary to primary education. In the 1990s, following the 1990 World Conference on Education for All (EFA) in Jomtien, a more unified aid agenda emerged and the focus shifted to funding primary education and EFA. This millennium saw a dual track approach of aid policies promoting EFA and post-secondary education.

The mode of external funding of higher education, like in other sub-sectors, remained mostly project-based, focusing more on capital investments than on meeting recurring expenditures. Over a period of time, the project mode of external funding in education gave way to sector-wide approaches (SWAs) and medium-term expenditure

frameworks to sustain the initiatives aligned with the recipient countries' policies and programs. Education aid today is seen more as a partnership than as a donor-owned and donor-driven activity.

With increasing domestic reluctance to extend aid, questions on the effectiveness of aid are posed by donor countries. How to improve allocative efficiency and aid effectiveness is a fundamental question posed by the donors. The Paris Declaration of 2005 made recommendations for improving aid effectiveness through better prioritization in the allocation of aid, coordination in delivery, and ownership in the implementation of education programs.

This paper analyses aid to higher education. It shows that higher education aid either remains concentrated in selected countries with a relatively expanded higher education system, or is too fragmented involving a multiplicity of agencies and spread too thinly mostly in the countries with a less expanded higher education system. The paper argues for aid to support efforts to revitalize both institutions and the higher education system. This may happen when support is extended to national policies and strategies for higher education development, and when the focus is on institution-wide improvement rather than on selected faculties for targeted intervention. This may be a way of improving aid effectiveness in higher education.

The plan of the paper is as follows: The first section introduces the debate on aid and trade in higher education. Section 2 discusses the changing donor perceptions on aid to higher education. Section 3 analyses the trends in aid flows to the higher education sector. Section 4 discusses the pattern of aid distribution in the recipient countries. Section 5 draws some implications for improving aid effectiveness by identifying probable priority areas of investment, and the final section makes some concluding remarks focusing on the expected effect of the economic crisis on aid flows.

1. To aid or to trade higher education

In the 1950s and 1960s, it was believed that the missing link in economic development was capital, and that private capital and foreign direct investment (FDI) would not reach developing countries for lack of mature markets. This belief encouraged the extension of foreign aid to developing countries. The developed countries viewed external aid as an important instrument to help developing countries provide capital, promote markets, and accelerate economic development (Van de Walle, 2005) to facilitate 'catch-up'.

The end of colonialism and a sense of optimism regarding the role of governments to lead development and change promoted the idea of government-to-government aid as the best mode of resource transfer from developed to developing countries. The success of the Marshall Plan reinforced the belief in governments' role in development. In other words, this was a period of optimism in aid-financed and government-led strategies for development.

Apart from the economic rationale, aid support was always linked to the foreign policy of the donor countries. The political reason for providing foreign aid was to maintain colonial links and 'contain communism'. It was believed that aid was a good instrument to promote democracy, prosperity, and peace, and to contain communism through accelerated economic development (Coleman with Court, 1993). 'Arguably from the end of World War II until the early 1990s, the underlying rationale for providing foreign aid was the same as that for all US foreign policy – the defeat of communism' (Tarnoff and Nowels, 2004: 2-3).

In fact, the two economic and political blocks (Soviet and the US) were competing to extend funding support to the third world countries during the cold war period. The pattern of aid flows indicates that European foreign aid went more to their former colonies, and US aid more to those countries that were aligned with them (Moyo, 2009). Soviet aid flowed more to countries that supported them politically.

With the end of the cold war, the utility and contribution of aid to development came under closer scrutiny in the 1990s. The initial argument that aid flow leads to higher returns to investment in the developing countries and therefore helps them to catch-up and equalize with the developed countries was found to be untenable. The ascendance of a market ideology not only questioned state-led development, but also saw trade, and not aid, as an important instrument to promote growth. Further, with the collapse of the USSR, investing to contain communism became less rewarding (Degenbol-Martinussen and Engberg-Pedersen, 2003). All these factors contributed to an expansion of the domain of market operations and trade in all sectors, including education. Consequently, external aid as a share of the national income declined in many developed countries, and their share of contribution was certainly less than their committed share of 0.7 percent of the national income (IIEP, 1995).

The perception on the role of the government also changed over time. One can discern three phases in the evolution of the role of the state in development. In the first, government is seen as the only solution to all ills. In the second, the government's failure was seen as pervasive, and markets as the solution. The third view, which is more pragmatic than ideological, is that both markets and governments have pervasive failures, and that there should be a fair division of labor between the state and the market. 'We need to recognize both the limits and strengths of markets, as well as the strengths and limits of government interventions aimed at correcting market failures' (Stiglitz, 1989: 202).

While developed countries viewed trade as more effective and more development-friendly than development assistance (Vincent-Lancrin, 2005), the developing world also moved closer towards a market economy. The liberalization policies helped open up domestic economy to foreign investments and facilitated the flow of foreign capital to developing countries. The creation of the World Trade Organization (WTO) and the General Agreement on Trade in Services (GATS) in 1995 reinforced market-led development. Education became one of the services included in trade negotiations under

GATS.

This development is very important for the progress of higher education. Higher education became more amenable for trade under GATS, which takes place in four modes: a) cross-border supply of the service – where consumers (students) remain within the country; b) consumption abroad – where the consumers cross the border; c) institutional mobility – commercial presence of the provider in another country; and d) staff mobility – presence of persons in another country (Knight, 2002). Trade through all modes has been expanding fast and contributed to US\$17.5 billion in the USA, £28 billion in the UK, \$5 billion in Canada etc. Cross-border higher education became a lucrative area in which to invest and trade.

Foreign aid from OECD countries rose steadily until the 1980s. In the 1990s, however, three events lowered the absolute and relative importance of foreign aid: fiscal problems in OECD countries; the end of the Cold War; and the dramatic growth in private capital flows to developing countries (World Bank, 1998). While those countries actively promoting trade reduced their share of development assistance, some of the other countries continued or increased their share in development assistance. Aid to education was also affected by these developments. However, not only did aid to education continue; it was channeled mostly through the national governments.

2. Aid to higher education: changing perceptions

Developing countries received a good share of foreign aid to expand the pool of higher educated manpower in the 1950s and 1960s. In the early days, donor countries supported a high-level manpower approach to extend aid to countries, and higher education was a beneficiary of this approach. The number of higher educated personnel can be increased by providing training domestically or abroad. Aid to higher education supported both modes of expanding the pool of highly qualified personnel in the developing countries. First, it promoted study-abroad programs for developing highly qualified human resources in the third world. The scholarships offered by many countries for higher studies abroad are good examples of this form of aid. This was the most important mode of aid support to countries that did not have a university of their own. The small countries in the Caribbean and Pacific region, especially the island countries, are beneficiaries of this mode of aid to higher education (Varghese, 2003).

Second, it supported the development of higher education institutions in the third world countries. For example, during the 1950s and 1960s, nearly 200 universities in the third world were funded by multilateral and bilateral agencies, notably USAID and the British Inter-university Council (IUC) (Coleman with Court, 1993).

External funding support to higher education declined in later years. Brain drain has been one of the reasons why donors have shied away from extending aid to higher education. It was feared that higher education programs encouraged international migration. The foreign study programs encouraged brain drain, and the development

of domestic universities produced a larger number of graduates than the domestic labor market could absorb. It created unemployment of the educated in many countries, and encouraged the migration of the educated to developed countries. The outflow of intellectual capital was more serious in Africa (Mohamoud, 2005).

In the 1990s, basic education became the priority area for funding, and donor support for higher education declined. The rate of return studies of the 1970s, which showed lower returns to investment in higher education in comparison with primary levels, and increased political support for EFA in the 1980s, contributed to a shift in investment priorities in favor of primary education. National governments also reduced budgetary support to higher education, especially during and after the structural adjustment period. For example, a review of 31 poverty reduction strategy papers by a group of experts (Bloom, Canning and Chan, 2005) indicated that only three governments considered higher education as a way of reducing poverty, and only two increased their funding for higher education.

These trends changed in the 2000s, and there was a return of aid to higher education. Some of the development experiences of the emerging economies indicated that brain drain has a bright side as well. Many countries see brain circulation as a means of advancing technological catch-up, since the diaspora are well-trained in the advanced technologies of the developed world. In fact, the increase in the demand for skilled labor arising from economic growth necessitated an expansion of the post-primary and post-secondary levels of education. In other words, the rapid progress towards EFA and increasing demand for skilled labor contributed to an expansion of education at all levels. The basis for allocation of aid was not always flexible and responsive enough to take into account these changes, and a lack of flexibility may have contributed to reduced overall effectiveness of aid.

Further, aid has a comparative advantage in funding some high-impact inputs that may not be adequately funded in its absence. These inputs include policy advice, analytical work, piloting of innovations, knowledge exchange, capacity-building of local institutions, and consensus-building among education stakeholders (Fredriksen, 2008).

Experience shows that education aid supports analytical work and policy development. This may help countries to develop strategies and prepare plans to invest in education, including aid money. In other words, investing in higher education to improve analytical capacities improves a country's aid-absorption capacity. Without additional human resources to draft and enforce development policies, additional funds for official development assistance may become counterproductive (Lewis, 2009). This is important, especially since aid pledged by the group of eight leading economic powers (G8) has increased to the tune of US\$25 billion annually for sub-Saharan Africa alone (Walenkamp and Boeren, 2007), and in the absence of clearly articulated policies and proposals, these funds may remain un-absorbed.

3. Aid flows to higher education

Total aid to education increased from US\$7.0 billion in 1999 to US\$11.3 billion in 2006 and US\$12.1 billion in 2007. The share of education in total aid remained more or less the same at around 9 percent of the total ODA contribution between 1999 and 2006, while it increased to 10 percent in 2007. The post-secondary level accounted for more than one third of the total direct aid to education between 1999 and 2000 (*Table 1*), and basic education accounted for more than a quarter of the total direct aid. Between 1999 and 2006, both basic and post-secondary levels of education increased their share in total aid from 25.8 percent to 33.8 percent and from 33.8 percent to 35.8 percent respectively. This increase was faster and more substantial. However, between 2006 and 2007, there was a decline in basic education aid to 21.0 percent, which was attributed mainly to the spiked allocations to education in 2006 in countries affected by conflict, and which did not continue at the same level in 2007 (UNESCO, 2010).

Table 1. Direct aid by levels of education (%)

Levels of education	1999-2000	2006	2007
Basic education	25.8	33.8	21.0
Secondary	14.6	8.7	13.8
Post-secondary	33.8	35.8	40.4
Level unspecified	25.8	22.3	24.8
Total (%)	100.0	100.0	100.0
Total aid in million US dollars	6,958.0 (2006 constant)	11,289.0 (2006 constant)	12,065.0 (2007 constant)
Direct aid to total aid to education (%)	94.7	92.9	88.9
Share of education in total ODA (%)	9.0	9.0	10.0

Source: UNESCO, 2009 and 2010.

During the period 2002 to 2006, global aid to higher education averaged \$3.3 billion annually (*Table 2*). The East Asia and Pacific region received the highest share at 29 percent, followed by the Arab states at 21 percent. South and South Western Asia received the lowest share at 5 percent, followed by Central and Eastern Europe at 7 percent. Africa received a share of 18 percent of aid to higher education. The picture becomes clearer when the trends across regions are analyzed (*Table 3*).

Table 2. Distribution of direct aid to higher education by region, 2002-2006

Regions	Share to total HE (%) 2002-06
Arab States	21.0
Central and Eastern Europe	7.0
East Asia and Pacific	29.0
Latin America and Caribbean	8.0
South and South Western Asia	5.0
Sub-Saharan Africa	18.0
Others	12.0
Total	100.0
2002-06 average	\$3.3 billion

Source: World Bank, 2010 (2006 constant US\$)

Table 3 shows the distribution of aid by level of education and region. One can notice wide variations among regions with regard to the aid to education received and the distribution of aid by level of education. Of the total direct aid to education of \$10.2 billion in 2006, SSA received the highest share (29.9 percent) for any region, followed by the East Asia and Pacific region (18.6 percent), and South and West Asia (8.2 percent).

What is more interesting is the intra-sectoral distribution of education aid. Basic education received nearly two fifths of the aid to Africa and South and West Asia. Basic education in Africa received \$1.1 billion annually, while higher education received \$600 million. The picture changes when one moves to other regions. More than half of the aid allocation in East Asia and Pacific (54.4 percent) went to higher education, followed by the Arab region at 47.6 percent. Latin America also devotes a higher share (38.2 percent) of aid to higher education.

Some of the countries benefitting the most from aid to higher education in the East Asia and Pacific region are China, receiving \$644 million in 2006; Vietnam, receiving \$151 million; and Malaysia, receiving \$82 million etc. In the Arab region, Morocco received the highest amount with \$238 million, Algeria with \$153 million, and Tunisia with \$105 million. In South and West Asia, India accounted for the highest share with \$53 million, followed by Iran with \$48 million. It can be seen that the relatively developed regions are investing higher shares of aid to higher education. It is equally important to notice that some selected countries are dominant recipients of aid for higher education, for example Algeria, China, Vietnam, Morocco, Tunisia, India, Iran, Turkey etc., and these are not the countries with the least developed higher education systems.

Table 3. Share of aid to education by level and region in 2006 (%)

Level of education	Arab States	E. Asia & Pacific	LA & Caribbean	S&W Asia	Sub-Saharan Africa
Basic education	19.6	21.9	20.9	38.9	39.5
Secondary education	7.3	3.3	13.0	23.3	7.5
Post-secondary education	47.6	54.4	38.2	18.9	21.2
Level unspecified	25.5	20.4	27.8	18.9	31.8
Total in US\$ in millions	1,625.0	1,892.0	741.0	839.0	3,051.0
Share of direct aid to education	15.9	18.6	7.3	8.2	29.9

Source: UNESCO, 2009 (2006 constant US\$)

Aid flows from the donor countries indicate that education is high on the agenda of many donor countries (*Table 4*). The share of education in ODA bilateral commitment is an indicator of the priority accorded to education by donor countries. Education accounted for more than a quarter of the aid commitments of Greece in 2008. France, Germany, Netherlands, Belgium, etc. allocate a good share of their aid to education. On the other hand, the UK and the USA allocate a low share of their bilateral aid commitments to this sector.

Table 4. Education as a share of total bilateral aid commitments in 2008 (%)

Donor country	Share of education
Australia	10.6
Austria	12.6
Belgium	12.2
France	18.0
Germany	13.7
Greece	27.6
Netherlands	13.2
United Kingdom	3.1
United States of America	3.5

Source: OECD, 2010.

In 2007, France was the single largest bilateral donor to higher education, with a contribution of \$1,361 million. This is closely followed by Germany with \$1,054 million. Japan, Netherlands, and Turkey are other important donors. The USA (with \$87 million) and the UK (with \$54 million) contribute a relatively smaller amount to higher education compared to France or Germany, who's contributions together accounted for more than 60 percent of the bilateral aid to higher education.

Table 5. Aid to higher education by donor countries (in US\$ million)

Country	1998	2007
Austria	69.3	129.5
Belgium	29.7	115.3
France	380.3	1361.2
Germany	504.6	1054.7
Japan	83.3	338.5
Netherlands	68.6	279.9
Turkey	..	150.1
UK	10.8	54.4
USA	110.7	87.4

Source: Lewis, 2009 (2006 constant US\$)

4. Where does aid money go?

Where did the countries invest their aid money? The external funding of higher education during the initial period helped establish new universities and support selected faculties of the existing universities in the developing countries. The aid supported new universities with expatriate staff, scholarships for study abroad, and capital contributions. Among the existing institutions, aid funds were invested in selected faculties rather than in the overall development of an institution.

French support for higher education has increased in the recent past and is devoted mostly to helping universities in Francophone Africa to restructure their staff qualifications to meet international standards. It also tries to build science and technology capacities in the region. A large share (nearly 50 percent) of the aid is spent on scholarships, mostly for postgraduate students in France (Lewis, 2009). The German Federal Ministry of External Cooperation (BMZ) statistics for 2007 show that nearly \$960 million, or nearly 94 percent, of the German aid support for higher education covers study places for students from developing countries in Germany (Bergmann, 2009). The USA and the UK also used to promote higher education through study-abroad programs for a long time. Although scholarship programmes continue, the recent trends in cross-border education indicate that a large share of the students are self-financed or privately-financed (Varghese, 2009).

Another trend that can be seen is that many donor programs promote and strengthen human and institutional capacities in the developing countries through engagement of higher education institutions in the donor countries, i.e. engaging in partnerships for higher education with the developing countries. For example, USAID's Higher Education Development Program has sponsored partnerships with more than 300 universities located in 60 countries (Lewis, 2009).

Several US foundations have collaborated to establish Partnerships for Higher Education in Africa (PHEA). PHEA contributed more than \$150 million between 2000

and 2005 to build core capacity and to support special initiatives. PHEA supports research, regional networks for regional research and post-graduate studies, university leadership, etc.

Japan has a tradition of supporting selected higher education institutions across the developing world, particularly in South East Asia. They have recently initiated new programs of supporting joint research projects between Japanese and developing country researchers – moving towards partnerships.

The UK program of Development of Partnership in Higher Education (DELPHE) has a budget of £15 million between 2006 and 2013 and is managed by the British Council and the Association of Commonwealth Universities. Multi-institutional projects, including staff and student training, are part of the program.

Sida (Swedish International Development cooperation Agency) provides core funding to develop facilities and human capacities to encourage research and teaching in the universities. Their support of the University of Dar Es Salaam is a good example.

Between 2002 and 2006, direct aid to higher education in Africa averaged US\$152 million annually and it accounted for nearly 26 percent of the total aid to higher education (*Table 6*). The remaining 74 percent (\$444) was indirect aid. A good share of the indirect aid is used for study-abroad programs. The share of indirect aid in total aid increased during this period.

Table 6. Aid to African higher education

Year	Direct aid in millions	Percent	Indirect aid in millions	Percent	Total aid in millions	Percent
2002	215.0	38.2	347.0	61.8	562.0	100.0
2003	161.0	26.7	442.0	72.3	603.0	100.0
2004	184.0	29.1	449.0	70.9	633.0	100.0
2005	131.0	25.6	380.0	74.4	511.0	100.0
2006	68.0	10.2	600.0	89.8	668.0	100.0
2002-2006 average	152.0	25.5	444.0	74.5	596.0	100.0

Source: OECD, 2009 (2006 constant US\$) .

5. Implications for aid effectiveness: prioritizing areas of aid investment

Higher education is back on the agenda of a wide range of influential donors, and aid to higher education should be increasing in the coming years. However, aid to higher education is either concentrated in selected countries or comes in a fragmented way, spread too thinly across institutions or areas of intervention. For example, countries such as Algeria, Cameroon, China, Vietnam, Morocco, Tunisia, India, Indonesia, Iran and

Turkey account for a very large share of higher education aid. Together they accounted for nearly 45 percent of direct aid to higher education in 2006. Many of these countries are neither the least developed nor countries with the least developed higher education systems. It seems there is scope for re-thinking criteria for identifying priority countries for higher education aid.

The other issue is the fragmentation of higher education aid. For example, of the 200 projects operated and reported by the OECD, 93 percent were budgeted at less than \$1 million, and 67 percent were budgeted at less than \$100,000 (Lewis, 2009). This is spreading the aid money too thinly with no visible impact or result. There is a need to provide aid in amounts substantial enough to make a difference – sufficient for a big push. This critical minimum amount of aid is necessary to improve its effectiveness.

Most of the aid money in higher education is, very often, utilized at the institutional level to support selected faculties, centers, or some areas within a department. This may not contribute substantially to the overall improvement of the institution. There is a need to extend institution-wide support to revitalize them. Providing aid on a piecemeal basis reduces its effects and impact. Many a time an institution-wide plan is not drawn up, except where institutions prepare strategic plans. What is prepared, very often, is a proposal to invest aid money flowing to the faculty/centre. There is a need to argue for drawing up institute-wide plans for revitalization, even when individual donor funds are targeted to selected areas.

Under the SWAp approach, funding of primary education depends on the preparation of an ESP encompassing all levels of education. This helps address issues at a sector-wide level. Funding of higher education rarely addresses even the sub-sector level issues in an integrated way. Educational planning departments are more preoccupied with preparing plans for school education than for higher education. In the higher education sector, institutional plans take precedence over system-wide plans. External funding needs to support efforts to draw up plans aligned with the existing sector-wide plans. There is a need to align higher education plans and aid with the education sector plans (ESP) prepared for Fast Track Initiative (FTI) endorsement wherever possible.

One of the reasons why institution-wide and system-wide reforms in higher education did not gain enough support in Africa was because the donor community realized the inherent difficulties of reforming the system in the absence of ‘indispensable structural reforms’. Due to the difficult political economy of introducing system-wide higher education reforms, the donors have either given up supporting reforms or have started funding institutes or faculties with sound proposals for introducing change (Fredriksen, 2004).

Most universities in the developing world suffer from deteriorating infrastructural conditions, poor teaching-learning conditions, and deplorable research facilities. There is a need to strengthen research and teaching facilities in the universities. This involves investing in laboratories, libraries, infrastructure, and research training. The teaching-learning process cannot improve unless the staff engages in research. Investments in

research is not an area of priority for domestic public investment. Therefore this may be an area of priority investment for aid money.

One of the difficulties confronted in research, especially supported by bilateral cooperation, is that it tends to be centrally managed in donor countries and they would like the recipient country to follow the donor country agenda in terms of research priorities and actions. This gives less freedom and autonomy to national governments to set priorities and articulate their agendas. This problem also stems from the dilemma of providing soft targeted core funding versus tied aid funding. In the soft targeted core funding framework, local partners have the autonomy to define priorities and projects. Some agencies provide core funding to promote local initiatives. Such experiments are found to be more successful than those adopting tied funding and tight control. In fact, the partnership model of aid financing helps increase a sense of ownership.

Higher education aid, as discussed in the paper, needs to focus also on areas that are not normally supported by national governments. These areas may include developing skills and competencies to provide policy advice, analytical work, piloting of innovations, knowledge exchange, capacity-building of local institutions, and consensus-building among education stakeholders. Needless to add, many of these are 'public good' functions (Fredriksen, 2008) and may not be taken up for priority investment by the national governments and public investments.

6. Concluding remarks

This paper has not addressed issues of change in aid commitments that may arise as a result of the current economic crisis. The general trend during periods of crisis is a reduced budgetary allocation to education aid. When there is decline in the volume of education aid, the post-primary levels of education will be more affected since there will be pressure, and rightly so, to retain allocations to primary education to achieve the Millennium Development Goals (MDGs). The data on aid to education during the crisis period is not readily available. The aid data discussed in the paper is for a period before the crisis began.

The limited evidence available indicates that most donor countries have not effected cuts in their aid budgets to education. Further, many aid agencies have indicated that they would maintain their aid commitments despite the crisis in the domestic economy. In fact, education is part of the stimulus packages for recovery from the crisis.

An analysis of policy responses to higher education of many donor countries in a period of crisis (Varghese, 2010) indicates that some countries cut higher education budgets, some maintain the budgets at the same level, and some increase their allocations to higher education. However, most countries, except some countries in Eastern Europe, either maintain or increase their allocations to higher education, especially in the areas of science and technology. These include countries that are the least affected by the crisis, such as Norway, and countries that are severely affected by the crisis, such as

Spain or Mexico. The Spanish Government has increased allocations to higher education by 4 percent to pay for scholarships, and €85 million to adapt structures and study programs to conform to the new European higher education framework. The Norwegian Government is planning to increase allocations to higher education especially targeting doctoral programs and investments in infrastructure. The German Government plans to increase funding especially for infrastructure and for science and technology. Even Ireland, one of the most affected countries, plans to continue with its investment plans in science and technology areas (*University World News*, 15 November 2009). It seems that countries are increasingly realizing the value of investing in higher education to improve economic competitiveness.

Even when there are no immediate budget cuts, many institutions of higher education are in the process of restructuring, retrenching employees, freezing recruitment, and re-adjusting student support systems to adapt to and survive the crisis. It is important to note that the higher education sector is reasonably protected during the current crisis period compared to previous ones. Therefore, it is expected that aid commitments to higher education will not be substantially cut as a result of the current economic crisis. However, this speculative remark needs to be empirically verified when data are available.

To conclude, higher education aid is concentrated in some selected countries and there is scope for re-prioritizing the countries selected for aid. Similarly, there is a need to redirect aid to areas that are critical and to those that will not be supported by national governments in the normal course of events. There is a need also to support institution-wide programs of revitalization, and to re-align with national policies and ESPs. It is hoped that aid effectiveness in higher education can be increased, as argued in the paper, through reconsidering which are the priority countries that should receive aid allocations, refocusing on areas of intervention, and re-aligning aid with national policies and ESPs.

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ARTICLE

Quality Basic Education Development in Nigeria: Imperative for Use of ICT

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Abstract

Information and Communication Technology (ICT) in education has been continuously linked to higher efficiency, higher productivity, and higher educational outcomes, including quality of cognitive, creative and innovative thinking. In response to the global imperative of Education for All, and not willing to be left at lower side of 'digital divide' Nigeria launched Universal Basic Education in 1999 and developed an ICT policy in 2001. One of the objectives of the policy focused on integrating ICT into the mainstream of education and training, including basic education. This has been evolving through a number of private and donor-funded initiatives though there is the need to ensure effective and sustained use of ICT in mainstream formal education system. This study explores Nigeria's ICT in education policies, implementation efforts, and availability of ICT tools in schools; teachers' knowledge, experience and practices in use of ICT at the basic education level; using qualitative analysis of existing documents and descriptive research design. The survey instrument is a self-designed and validated 50-item questionnaire administered to sampled basic education teachers in Lagos state. Findings showed that Nigeria is yet to fully commit to ICT integration in education as two key ingredients are lacking- skilled teachers and ICT tools and other infrastructures. It was recommended that these issues must be addressed within a focused and implementation committed ICT in education policy.

Background: Why ICT in Education?

ICT is the emergence of tools of microelectronic and telecommunications that are used in the automatic acquisition, analysis, storage, retrieval, manipulation, management, control, movement, display, transmission, reception, and interchange of quantitative and qualitative data (Boritz, 2000; Cheta, 2003). Haddad (2002) divided ICT in education into three categories: instruments (TV, DVD, computer), instructional (video and multimedia modules) and dissemination (TV broadcast, CD or Web), but emphasized that the choice of technology and the way it is used is partially determined by what is expected in terms of education, learning and teaching objectives. According to him, 'to tech or not to tech'

education is not the question; the real question is how to harvest the power of ICTs to make education more relevant, responsible and effective for school setting and lifelong learning. To compete successfully in a competitive global economic environment, a highly skilled and educated workforce with aptitude and skills in the application of ICT is very essential. This makes knowledge and use of ICT central to education in the 21st century (Wolff and Mackinnon 2002). People need to be effective and efficient in the use of ICT for success in today's rapidly changing and highly competitive world which depends on such knowledge and skills; hence the concern for Africa to take the best advantage of the knowledge economy (Obanya 2004). Assie-Lumumba (2008) captured this succinctly:

Beyond the immediate educational goal is the question of how to provide the 'best education' to form the next generation of competent leaders from community to the national and global levels, economic planners, scientists, artists, humanists and more generally informed citizens, especially in this fast-paced, technology-prone and globalize world. (p.2)

Nigeria, like many other countries around the world, has over the years sought to improve its education system by introducing reforms and making plans based on the education needs of the country, hence the development of Universal Basic Education (UBE). The broad aim is to give a solid foundation for life-long learning through the inculcation of appropriate learning-to-learn, self-awareness, citizenship and life skills (FGN 2003). With this focus, it can be concluded that beyond increasing access to education, ensuring quality is a key goal of basic education in Nigeria. This is in support of the Dakar Framework for Action (2000) in Education for all (EFA) that quality is at the heart of education- a fundamental determinant of enrolment, retention and achievement.

Quality improvement has two important dimensions: increase in the amount of subjects covered by existing curriculum, and through better pedagogy (changes in the learning process). The later includes developing new types of learning; ability to gather and manipulate information, problem solving, higher order thinking, critical and creative thinking and other necessary skills to interact in knowledge based economies. The need for the changes in the learning process paved way for ICT use in the teaching and learning processes where students are expected to play more active roles than before (Alabi 2004); especially if basic education should target the four pillars of learning- learning to learn, learning to be, learning live together, learning to be (Delors 1996).

Studies have further established the roles of ICT in achieving quality education at all levels of the school system. ICT is seen as key tools in acquiring, processing and disseminating knowledge (Adedoyin, Akinnuwesi & Adegoke 2008). It offers increasing possibilities for codification of knowledge about teaching activities through being able to deliver learning cognitive activities anywhere, anytime (Larsen & Vincent-Lancrin 2005). Yusuf (2005a) noted that ICT has impacted on the quality and quantity of

teaching, learning and research in traditional and distance education institutions through provision of dynamic, interactive and engaging content and providing real opportunities for individualized instruction. It has the potential to accelerate, enrich and deepen skills, motivate and engage students in learning; help to relate school experiences to work practices, contribute to radical changes in the schools and provide opportunities for connection between the school and the real world (Davis & Tearle 1999, Lemke & Coughlin 1998). Other researches have also argued that ICT have the potential to transform learning environments and improve the quality of learning (Siemens 2005), by making learning more situated (Bransford et al. 1999), providing access to richer environment (Caplan 2005), increasing opportunities for active learning, interconnectivity and feedback (Launllard 2002, Jonassen et al 2003), enhancing motivation to learn (Abrami 2001), offering varieties of new possibilities to learners (Breuleux et al. 2002) and having a positive effect on students' achievement in different subject areas (Chambers 2003). ICT can therefore make the school more efficient and productive thereby engendering a variety of tools to enhance and facilitate professional activities (Kirschner & Woperies 2003). Haddad & Jurich (2002) summed it up:

The traditional model of learning emphasizes mastery of facts and concepts. ICT diversifies the system of representation through the use of various stimuli (images, sounds and movement) and address the needs of diverse types of learning (visual, psychomotor, and affective). (p.33)

Beyond the benefits, a practical application of ICT in the achievement of EFA goals and especially in the context of Nigeria's UBE is demonstrable in the following ways, among others (Pelgrum, 1996; Bottino, 2001; Haddad, 2002)

- Provide access to education beyond the formal schooling environment, as being used in some radio, television and web programs to reach children and adults who are not easily accessible. A case in study is the nomads in Nigeria.
- Within the classroom, ICT tools can be used for creative, communicative, collaborative and task-based activities during instruction in various school subjects especially mathematics, languages and sciences; as well as encourage self discovery by learners.
- ICT tools have been proven to be of significant input in teacher professional development as quality in education is also dependent on teacher competencies. This is achieved through access to online journals, joining discussion forums, downloading lesson ideas and plans, exploiting teaching resources, and record keeping.

However, and despite all justification for the need for and use of ICT in the teaching and learning processes to achieve the goals of basic education, the vision of easy access to all is justifiable but had to achieve (Haddad 2002). This is especially the case in Nigeria.

Statement of Problem

With a population over 148million, an active member of E9 and among the next 'eleven' group of potentially endowed nations (Goldman Sachs 2007)), Nigeria has set for herself a wide array of ambitious goals of several global and national frameworks that seek to promote the fundamental right of her citizens to quality education. Despite this, at the E9 meeting held in Indonesia in April 2008, it was revealed that Nigeria is one of the only two countries that were at the risk of not meeting the targets of EFA, because the quality of teaching and learning in our schools remain a significant challenge. The Millennium Development Goals Report (UN 2005) acknowledges that quality assurance in education is yet to be adequately addressed in terms of teachers, curricula, teachers' support and teaching learning materials. Igbuzor (2006) noted that the process of learning and teaching does not lead to production of analytical, critical and engaging products; the teachers do not have the competence and skills to use active pedagogies, and that the content of education in Nigeria is irrelevant to the needs of prospective job seekers. Various studies conducted in Nigeria have also shown clearly that there are low academic achievements among pupils in such basic skills as literacy, numeracy and life skills (Lawal, 1995; Aderinoye 2002, Afe, 2006). There are also proposals on how ICT be deployed for effective acquisition of these skills (Haddad, 2002; Salawu, 2008). In ensuring effective use of ICT in educational systems, UNESCO (2004) identified a number of frameworks for setting ICT for education programmes. These include: policy and vision of ICT use in schools, technology and infrastructure, curriculum, pedagogy and content development, professional development, monitoring and supervision. Using these criteria, has Nigeria been able to recognize ICT roles in her educational policies and therefore committed to its practice and implementation, especially in the context of achieving quality education, lifelong learning, teacher training and the development of skills of literacy, numeracy and life skills? This study hopes to provide insights to these concerns. The study therefore determines Nigeria's visions for ICT in basic education and examines its implementation in terms of the availability of ICT tools in schools and their application in improving teaching and learning in basic school subjects.

Scope of the Study

For Nigeria, basic education comprises both the range of formal schooling (private and public) as well as a wide variety of non-formal education activities offered to meet the learning needs of groups of people of all ages. However, for this study, the focus is on ICT use in teaching and learning activities within the formal system of basic education, i.e. schools, comprising the nine years of basic education which, according to the UBE Act, is free, compulsory and functional. Basic education schools, i.e. primary and junior secondary schools in Lagos state of Nigeria are used as subjects.

Research Questions

1. What is Nigeria's vision for integrating ICT in basic education, especially in teaching and learning processes? Is this vision articulated in any policy?
2. What initiatives have the government proposed and implemented to integrate ICT in basic education in terms of access and infrastructure and human resource development?
3. What are the available ICT tools in teaching and learning in basic schools in Nigeria?
4. What is the teachers' background in the use of ICT as well as the teachers' ICT behavior?
5. What are the barriers to ICT integration in teaching-learning process?

Methodology

Qualitative reviews through the analysis of policy documents in education, namely; National Policy on Education (FGN 2004), National Policy on Computer Education (FME 1988), National Policy for Information Technology (Federal Ministry of Science & Technology 2001) and National Policy on Teacher Education (FME 2007) were done to answer the first two research questions. In addition, the study used descriptive survey design employing random sampling procedures to select subjects and utilizing quantitative data from in-service teachers of basic schools. The data, which were collected between July and August 2009, were employed in answering research questions three and four. The sample consisted of 351 basic education teachers from private and public schools in Lagos state, Nigeria. Lagos state was purposively sampled for a number of reasons: though one of the 36 states in Nigeria, its population (20 million) constitutes about 13.5% of Nigeria's total population. As a former capital of Nigeria, it is often referred to as the commercial nerve centre of the country which placed it in greater demand for ICT use in schools and work environments. In addition, it was the earliest state to have come in contact with western education, and subsequently globalization (of which ICT is core). With these attributes, it is believed that the study findings from Lagos State will set the tone for ICT deployment in other parts of Nigeria. The teachers sampled included 220 public and 131 private school teachers, all randomly selected from different schools in Lagos State. Their basic statistics include: 68.6% females and 31.3% males; 7.4% of them had Grade II teaching certificate, 36.7% had Nigerian Certificate in Education (NCE), 37% had a first degree while 18.8% had National Diploma (ND), signifying that a total of 92 (26.2%) of the sample are not qualified teachers. Their teaching experiences also range from 0-5 years (50.4%), 6-10 years (25.2%), 11-14 years (12.6%) and 15 years above (11.8%). This signified that majority of those sampled are newly qualified teachers who are expected to be in tune with the use of ICTs in schools by virtue of their recent training. The instrument used is a comprehensive self-designed 50-item questionnaire exploring

information from the teachers about ICT infrastructures available in their schools, the teachers' background and experience in the use of ICT, how they use ICT in instructional processes, their attitude and behavior in the use of ICT as well as students' reception and competence in learning with ICT. Based on these divisions, the questionnaire had 6 sections, with each section dedicated to each theme. To ascertain its validity, the questionnaire was subjected to opinions of experienced lecturers of education, especially experts in educational technology, whose suggestions were used to modify the instrument before it was trial tested on thirty basic education teachers from different schools from the main sample in Lagos state. The questionnaire was validated using Cronbach Coefficient. The final internal consistency (reliability) of instrument was found to be 0.79. 400 questionnaires were administered through face-to-face technique within four weeks, while 351 were returned, signifying a return rate of 87.7%.

Findings

The findings of the study are presented thus, based on the research questions.

1. Nigeria's Vision for Integrating ICT in Schools

As a signatory to a number of pacts and treaties to the World declarations on education (Education for All and the Millennium Development Goals), which also spurred her to develop a number of policies in this regard, Nigeria also committed herself to the promotion of quality education through ICT. These policies have made it imperative for Nigeria not be left at the lower realm of the 'digital divide'. The Nigerian National Policy on Education (2004) recognized education as instrument *per excellence* for effecting national development, through "the acquisition of appropriate skills, abilities and competencies, mental and physical, as necessary for the individual to live in and contribute to the development of his society" (p.7). It stipulates that education has to be tailored towards self-realization, right human relations, individual and national efficiency, effective citizenship, national consciousness, national unity as well as social, cultural, economic, political, scientific and technological progress (NPE 2004, p.7). In order to realize these objectives, ICT is emphasized at all levels of Nigerian education:

- All states, teachers' resource centers, university institutes of education, and other professional bodies in education shall belong to the network of ICT (section II, sub-section 102(a) p.53).
- Government shall provide facilities and necessary infrastructure for the promotion of ICT and its use as learning tools at all levels of education (section II, sub-section 102(d) p.53).
- Virtual library project, aimed at the rejuvenation of the Nigerian schools through provision of easy access to current books, journals and other information sources using digital technology was also included.

The same is also emphasized in the Universal Basic Education (UBE) policy that: *UBE is also an opportunity for Nigeria to confront head-on the challenges*

of and to take full advantage of the possibilities offered by new information and communication technologies for improving the quality education. The information age is also the age of knowledge. No school system can afford to stay outside the knowledge age while serving world that is now run by knowledge. The way out of the dilemma is the integration of computer appreciation, computer literacy, and computer applications into UBE (FGN, 2003; Article 28, p.8).

In addition and in preparation for the integration of ICT in schools, Nigeria developed the National Policy on Computer Education in 1988 with the objective to encourage teachers to develop a sense of rapport with computer and appreciate its potentials for solving teaching and learning challenges, and to entrench computer culture that permeates all activities in institutions of learning (Abimbade et al. 2003). The modalities for achieving the objectives include training teachers and associated personnel, hardware facilities, curriculum development, software developments and evaluation, maintenance of hardware and peripherals (Jegede & Owolabi 2005). Government implemented the initiative through federal government colleges and unity schools. It later permeated other state-owned and private schools. However, the policy, with its lofty goals did not take off beyond the distribution and installation of computers in some schools (Aduwa-Ogiegbam & Iyamu 2005).

The National Policy for Information Technology was formulated in 2001 with a vision ‘to make Nigeria IT capable country in Africa and a key player in the information, using IT as the engine for sustainable development, and global competitiveness (Federal Ministry of Science & Technology, 2001). The mission statement recognized the need to use IT for education (p.iii). In addition, the general objectives (3 out of 31) focused on integrating ICT into the mainstream education and training, with a strategy to “restructure educational systems at all levels to respond effectively to the challenges and imagined impact of the information. Yusuf (2005a) noted that although the mission, general objectives and strategies recognized the importance of ICT in education, the document has no sectoral application to education and issues relating to education are subsumed under human resources development. To this end, the National Information Technology Development Agency (NITDA) was established, which serves as the clearing house for IT projects in the public sector, including education. It developed some standards for computer uses in schools, including students- computer ratio, stipulating that;

- Early Child Care Development Education (ECCDE)- 50pupils to one functional computer
- Primary- 50pupils to one functional computer
- Post primary- 40 students to one functional computer
- Tertiary- 25 students to one functional computer

In implementing the ratio, schools are required to establish computer laboratories

and classrooms equipped with interactive white boards and other teacher-aided learning tools.

In terms of ICT and teacher development, the National Policy on Teacher Education (FME, 2007) developed a vision “to produce quality, highly skilled, knowledgeable and creative teachers based on explicit performance standards through pre-service and in-service programs to raise a generation of students who can compete globally’ (p.6). The goal is to ‘ensure teachers are trained and recruited to teach world-class standards and continue to develop their competence over their entire career’ (p.6). ICT was identified as one of the conditions for the achievement of the goal, as ‘the training of teachers on strategies of collaboration, reflection on enforcement of ICT practices and action research’ (p.5).

Having demonstrated a strong commitment to the promotion of ICT in her educational and economic goals, it should be noted that Nigeria has no particularly articulated policy for ICT in education. However, the examined policies demonstrated that government stands committed to developing a comprehensive ICT tools integration in education within a national IT policy, basic education reforms and poverty reduction strategy. Beyond this, it has been posited that the formulation of an information technology (IT) policy constituted only about 20% of the IT solution for the country, but the remaining 80% lies with implementation (Isoun 2001).

2. ICT-in-Education Implementation Initiatives

Owhotu (2006) noted within her sub-region, Nigeria has been in the lead in the integration of ICT tools with a number of initiatives; through collaborations with the government, by development partners, NGOs (international and local) and private corporations. Some are briefly discussed.

- **SchoolNet Nigeria:** Launched in September 2001 and funded by Education Trust Fund, SchoolNet is engaged in the effective and sustainable deployment and use of Information and Communication Technologies (ICTs) to enhance teaching and learning in the primary and secondary education sector. It embodies a partnership between public and private sector interests and is affiliated to SchoolNet Africa. The core activities are in implementation, support and co-ordination of ICT national and state level development projects in education through technology support, training and development of relevant content.
- **Education Trust Fund (ETF):** Education Tax is a 2% of companies’ profit tax which is distributed by the Education Trust Fund for education purposes. Besides working with SchoolNet Nigeria, ETF also works on the Education Resource Center project which aims to create science labs, ICT laboratories, libraries and multi-purpose halls in schools and institutions of higher learning. ETF also provides funding to universities and other institutions to improve education levels and standards.

- **Computers-in-Schools project:** This was kick-started in 2002. The major objective is to develop computer and technological literacy through the introduction of computers in secondary schools similar to what has been done in many other countries including Turkey and Morocco.
- **One-laptop- per-child (OLPC):** September 2006 witnessed the launch of the one-laptop- per-child (OLPC) initiative in collaboration with the Nigeria government which has resulted in the provision of 100-dollar laptop for the e-secondary school project in Nigeria. Nigerian software developers are concentrating on integrating local curriculum content into the project, covering every subject in the school system from JSS 1-JSS 3 and then SSS 1-SSS 3. With OLPC however, there is still the need to give schools a satellite dish, power generator and a modem to ensure electricity and connectivity.
- **Interactive Radio Program:** Access to radio and television as information and communication tools is very pervasive in Nigeria with the penetration of radio reaching about 90 per cent. Through the National Commission for Nomadic Education, IRI was launched in 1992 to provide open and distance education to pastoral nomads. Using Federal Radio Corporation of Nigeria (FRCN), Kaduna, and particular hours of the day is dedicated to air participatory instructions on basic functional literacy and numeracy, health and environmental education, introduction of modern techniques in animal husbandry and processing of dairy products and civil responsibilities. The radio program is participatory, making it widely accepted and appreciated by the nomads as they listen to this program and respond using a feedback mechanism that has been set up to monitor the programmer's efficacy. It contains weekly news items, views, interviews, discussions, music, drama, jingles, etc. There are also school based IRI programs to improve quality of teaching and learning where performance is low and teachers are poorly trained. One notable example is IRI adoption by USAID's Community Participation for Action in the Social Sector's (COMPASS) program to improve literacy and numeracy skills of pupils in Lagos, Nasarawa and Kano states.
- **The NEPAD e-Schools Initiative** is being led by the e-Africa Commission. Its stated objective is "ensuring that young Africans participate actively in the global information society and knowledge economy", with focus on ICT skills and knowledge to primary and secondary school students through series of trainings to teachers and school administrators, in collaboration with Intel, Microsoft, HP and other IT companies. In Nigeria, NEPAD initiative is chaired by NITDA and is currently working out strategies of connecting some schools to the internet. Other initiatives include: the National Infrastructure framework for Open and Distance Learning, Virtual Library project, Microsoft IT academies, etc. ICT efforts in Nigeria are majorly driven by private initiatives. While these are welcomed developments in integrating ICT into education, there is the need to sustain the integration through conscious, planned, and deliberate utilization of ICT in instructional processes in schools, as effective use of e-learning requires the presence of extensive and sustained support (Knowles 2004).

These initiatives are often piloted, short term, donor-funded projects which give

no room for continuity and sustainability. They often show pockets of efforts with no coordination, resulting in poor distribution of resources, duplication of efforts and lack of meaningful results. Though there are often data supplied to support the impact of these programs, the percentage of beneficiaries is small compared to the number of school age children that require such opportunities. In addition, there is no mechanism put in place for measuring the subsequent performance and learning achievements of recipients of these projects. Their impact is therefore minimal, if any.

3. ICT Tools Available in Basic Education Schools

This section is addressed through data generated from the survey of teachers of basic school. As a basic requirement in steps towards ICT focus on computers, the study tried to find out the availability of computers in schools as well as its use. While 66.7% of the teachers sampled claimed they have computers in schools, only 9.3% of these (22 teachers) actually have computers in their classrooms, and just 29.8% (70 teachers) use it at all in delivering instructions. This figure is disappointingly low when viewed in terms of the intentions and plans discussed in the policies on ICT integration in schools. The availability of other ICT tools is lower than computers, and where they are present, the numbers are very insignificant. Teachers could not state the functions of some (CD ROM, CD Writers, Scanner and LCD Monitor); maybe because they are used chiefly for administrative purposes, while radio, television and video player from the description of usage are used at lower primary schools. Of course, they all have GSM phones, but these are teachers' personal possessions and not used in schools. Teaching and learning with ICT only involves exposing students to computer instruction in some cases, while there is no focus on this in most of the schools. From the data collected, basic education students do not have adequate exposure to computer; talk less of other ICT tools. Only 29.8% of teachers observed that they teach computer skills in their schools while 64.7% have no idea if their students are computer literate. Of those who admitted to teaching computer skills, 30.4% noted that their students do appreciate and are excited about these lessons. The numbers of computers in each of the schools also vary as between 2-6 students share a computer in those schools where computers are available.

4. Teachers' background in, understanding and perception of ICT

Of the teachers sampled, only 33.7% claimed to have personal computer, while 27.5% admitted to being introduced to some ICT during their training as teachers. Also, 35.3% admitted to having an e-mail account and out of this, 50.6% claimed they check their mail just occasionally. Surprisingly, as much as 41.4% claimed they never visited the internet at all, while those who do, only 5.8% went there for the purpose of research, however, when asked to name sites they have visited, names such as yahoo.com, yahoo.co.uk, yahoo.ca, Gmail and Google came up, meaning they could not differentiate between internet hosts, search engines and web sites. It is noted that teachers are not well equipped to teach using ICT. Because of the nature of exposure to ICT, most teachers operate

even below the emerging level. This is in agreement with the Adeosun & Maduekwe (2008) that Nigerian teachers possess lower level skills in use of ICT. This includes very basic knowledge of computer (low ability to use a computer operating system including basic hardware and the little understanding of basic terminology and concepts). Majority of subjects acquired internet/computer skills rather informally, i.e. through self efforts by computer training courses which are either self paid, or crash programs often organized by NGOs, corporations and development partners, and sometimes, reliance on friends/relatives. The findings supported Yusuf's study (2005b), where he found that most teachers in Nigeria do not have the needed experience and competence in the use of computers either for educational or professional purposes, neither do they have the needed competence in basic computer operations, skills and knowledge in the use of common computer software. He further observed that the existing curriculum designed for the training of pre-service teachers in Nigeria does not include the practical usage of ICT materials such as computers and their software, slides, overhead projectors etc. Even when it is included, it is only based on theoretical paradigms. Student teachers hardly come in contact with ICT instructional materials, including those who are running programs in educational technology. This explains teachers' indifference to ICT shown in *table 1* (over 50% of teachers chose not applicable for each perception construct). This could be attributed to a number of factors, mostly the lack of training in the use of ICT, as well as the nature of training of some teachers had. In a study of primary school teachers use of ICT, Okafor & Edet (2008) revealed that than 99% of sampled were yearning for in-service training that would enhance their teaching competences and the achievement of the objectives of ICT use in the curriculum.

Table 1. Teachers' Perception of ICT

Constructs	Agree (1%)	Disagree (1%)	Not applicable(%)
I am active in the use of ICT in the classroom	21.7	13.6	56.3
I make allowance for ICT use	15.5	17.8	57.9
I consider ICT useful for learning	9.1	26.2	58.9
Students can use computers at home if they so wish	14.2	25.6	55.0
ICT is not relevant to teaching	9.1	27.8	57.6
I use ICT only for personal purposes	26.6	9.1	58.9
I use ICT for professional purposes	21.7	12.0	59.9
I do not feel threatened with the use of ICT	10.7	24.3	57.6
I feel inadequate in using ICT	20.4	17.8	57.0
I seek out ideas about ICT always	20.4	13.9	57.0
I always try out some learning activities with ICT	26.5	10.4	56.3
I use ICT based on the recommendation of another teacher	10.7	21.0	60.8
I depend on other teachers to use ICT	12.3	20.1	60.2
I encourage my pupils to use ICT	24.3	7.8	61.2
ICT is an enhancement to my classroom	23.9	8.1	60.2
ICT is critical to learning achievement	24.3	8.7	60.5
I make efforts to upgrade my computer skills	24.9	10.4	59.2
I am a major contributor to ICT development in my school	16.2	13.9	60.2
I am incapable of operating ICT tools independently	18.1	17.5	58.9

5. Barriers to ICT Integration in schools

The study has been able to establish that a chief barrier to ICT integration in schools is the lack of skilled teachers. However, the teachers' identified barriers are shown in *figure 1*. While all barriers identified are significant, according to the teachers, lack of time is a chief impediment to ICT integration. This can be perceived in two ways: (1) lack of time on the part of the teachers to engage in training in the use of ICT as a form of professional development, or the lack of instructional time to effectively use ICT within a forty-minute lesson usually allocated for basic school subjects in Nigeria. However, the teachers' identified barriers have been supported by a number of studies (Aduwa-Ogiegba & Iyamu 2005, Okafor & Edet 2008, and Salawu 2008). These include limited ICT infrastructures, poor internet connectivity, inadequate learning resources (educational tools, course curriculum, etc.) attitudes of teacher-trainees and teacher trainers which indicate a gross lacking in independent learning skills and reluctance to take responsibility for their own learning, software license and highly prohibitive costs associated with, lack of maintenance and technical support, and most importantly poor power supply, a problem that is peculiar to Nigeria (Olakulehin, 2007). Ololube (2006) also attributed these barriers to economic disadvantages and government policies. Also, basic infrastructures in schools- buildings, furniture, books, libraries, laboratories and adequate classrooms- are

still are big challenges which may make blending education and technology especially at lower levels a farce.

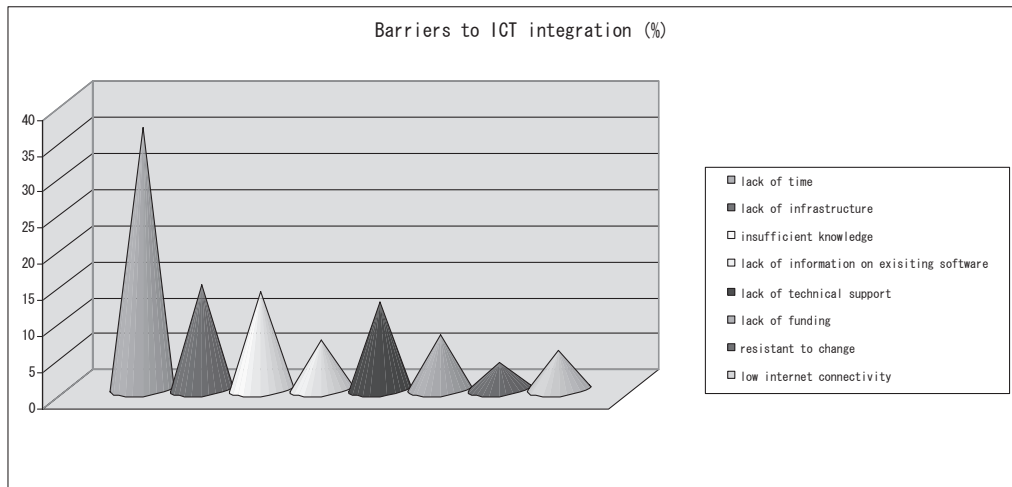


Figure 1. Barriers to ICT integration

Discussion and Implication

The results from the data presented showed that in spite of the government visions and policies for the use and integration of ICT in schools, two very important features of integration are lacking- human resource development in terms of skilled teachers to use ICT in teaching and learning processes, as well as ICT infrastructures. Very few of the sampled schools can actually boast of even minimal provision of ICT tools. Also, the exclusive focus on computers by the respondents also showed that to most Nigerians, including teachers, ICT integration stopped at the use of computers, and that to be ICT aware is to be computer literate. Computer literacy is essential for ICT use especially in education as Cajkler (1993) and Higham & Macaro (1993) noted that all teachers and trainees should have opportunity to experience ICT skills as a normal and inescapable part of their training. It is unfortunate that the teachers could not demonstrate evidence of effective acquisition and use of ICT even at the basic skill level, hence they cannot fully utilize technology in their classrooms, and the traditional ‘chalk and talk’ approach still dominates the school pedagogy. The sample teachers also show some ignorance of the trends in the 21st world as access and regular use of e-mail and other internet features is a powerful tool for teacher continuous professional development in terms of collaboration with other professional colleagues and access to updated researches. While some of the teachers made efforts to acquire computer skills, this is not helpful to their professional development as most do not have e-mail accounts and rarely visits the internet, while those who visit the internet could not demonstrate effective knowledge of ICT tools as well as search engines. It is also disheartening that none of the teachers sampled confessed

to being a beneficiary of the multiples of trainings often organized by governments, NGOs, development partners and corporate organizations. While the modality for selection for the trainings was not explored in this study, this observation lends credence to the notion of ‘pockets of efforts’ in ICT integration, marked by lack of coordination and therefore ineffectiveness.

Most importantly, ICT tools and equipments are grossly lacking in almost all the sampled schools. Even when they are available, they need to function with other infrastructure such as electricity under controlled and reliable conditions. For over three decades, Nigeria has been unable to provide minimum acceptable standards of electricity service to her citizens. Initiatives by NGOs and Corporations in donating hardware, software, internet access and trainings to some schools are often incomplete without provisions for generating sets to enable these projects function properly. In rural Nigeria most inhabitant do not have access to electricity, thereby denying rural schools opportunity to benefit from the use of electronic equipment such as radio, television, video recorders and computers. The few Internet access available in Nigeria is found in urban centers. According to Ndukwe (2007) all ICT equipment, infrastructure and terminals depend on electricity to energize, unless this vital source is always available and reliable, Nigerians will not be able to fully enjoy the benefits that the digital revolution offers and that overcoming the energy crises is a major pre-requisite for Nigeria to achieve its Vision 20-2020. These environmental realities make ICT integration and sustainability difficult.

Recommendations & Conclusion

It is no more disputable that ICT is important in the development of quality teaching and learning in educational systems around the world, as well as a means for fundamental transformation into the existing school principles and practices for the preparation of students in meeting the innovations in the global arena. Achievements in the ICT penetration and usage in Nigeria basic education programs is dependent on the recognition of this importance, beyond policies and disjointed efforts at ICT application to education. According to Yusuf (2005a), the world outside the school system has been able to achieve much in the area of ICT integration in their daily routine, while the schools are left behind. Since ICTs are seen as add-ons to the education system, there is little recognition that ICT can be used to supplement and complement the conventional education delivery system or processes, or that they can be used to improve the quality of teacher training programs. As a result, few teachers have been provided with training on how to integrate ICT into the teaching/learning process. Lack of teachers’ skill in ICT use made changes noted in schools smaller than expected. It is therefore imperative for government to demonstrate more serious attitude to the use of ICT in schools. It should start with the provision of facilities, but more importantly, training of teachers. Olakulehin (2007) noted that it is important that teachers in the training institutions are imbued with the skills and

abilities of ICT literacy and sensibilities so that the knowledge and attitude acquired will cascade onto the learners that they come in contact with in the classrooms when they begin to practice. There is therefore need to consider how best to integrate specific ICT objectives and resources into the teacher education program. As the Internet becomes an importance part of education and as literacy is redefined by the new technology, it will be mandatory that teacher trainers integrate this new resource with daily instruction so that trainees can learn how to develop the new literacy this technology permits. In-service and pre-service teachers need training and empowerment on the use of technological skills. They are expected to apply their collaborative, communicative, acquisition and problem-solving skills in the use of the Internet in their curriculum. This situation emphasizes how important it is then for teacher preparation and staff development programs to acknowledge the convergence of the internet, instruction and to prepare teachers to integrate technology with curriculum.

Moreover, issues related to digital divide require comprehensive solutions that integrate people, processes and technology; hence government needs a strong political will to address key issues so that such efforts can be effectively complimented and productive. There is need to create an enabling environment for teacher education programs to strive toward producing highly qualified ICT literate teachers and teacher educators that would assist in making the integration and usage of ICT in schools a success. For sustainable integration of ICT in education, funding and other infrastructural issues should also be addressed. Nigeria also the need to develop a specific policy for ICT in education- a national policy for ICT in education will help to locate Nigeria in the emerging global knowledge based economy, coupled with strategic investment in education to enable greater productivity in the workforce and thus increased national competitiveness. In harmonizing the efforts in the education sector with the national effort, the Ministry of Education should have a standard policy for stakeholders to have inputs to the process of defining a common vision for the systematic integration of Information and Communications Technology in the education system.

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