Trends in Education in Asia: A Model for Mali

Asian countries' educational policies can be a great source of inspiration for Mali and therefore it is important to review Asian education trends. A report by Riordan (2004) places lifelong learning at the center of Asian efforts concerning education as Asian countries face globalization and economic integration. The trend is driven by

> …the increasing pace of economic change, in technologies, in product and labor markets, and the presumed increase in the rate of depreciation of knowledge and skills as training systems struggle to keep pace. In this context, the traditional view of initial education and vocational training, as providing most or all of the skills required for an entire lifetime, has become obsolete (p. iii).

The intent of this approach is to ensure that workers' "skills and competencies are maintained and improved as work, technology and skills requirement change" (p. 1). An innovative inter-Asian -country network is promoted through the use of educational and training centers. The share of population aged 15-64 participating in lifelong learning ranges from 15% in China to 33% in Singapore. Trends

indicate enterprises offering lifelong learning opportunities through online courses. Also, community learning centers have been created at the grass-roots level to provide lifelong learning opportunities. More impressive is the adoption of mass education, emphasizing the expansion of post-secondary education and training opportunities. Private institutions such as banks convert their formal vocational training into credits recognized by higher education qualifications. In addition, the use of information technology has inspired the creation of "mega-universities" that facilitate distance education on a large scale in remote areas. In summary, "the new approach will include three main components: the development of local training centers; the promotion of new basic skills, in particular in information technologies; and increased transparency of qualifications" (Riordan, p. 5).

Cheng (2000) reviews the dynamic changes in education in Asia and elicits the challenges of matching quality with quantity. The implications are that it is necessary to transform teaching methods and to provide some guidance to the multiple educational institutions to ensure that results match the new visions and priorities. "All these challenges and issues would inevitably become the core

agenda of policy debate. Through research they should be analyzed and investigated extensively" (p. 6).

The Asian model presents a paradigm adaptable to Mali. It appears to be driven by building individuals skill levels, and the information technology- centered skill base offers self-employment opportunities requiring minimal investment.

CREATING TECHNOLOGY SCHOOLS IN THE UNIVERSITY SYSTEM IN MALI

Engineering Education and Development

In a previous chapter, I elaborated on the Asian human resource development models. For example, Thailand, a Southeast Asian country, provides a clear strategy for rapid human resource development based essentially on science and technology. Janssen and Sharp (1985) in their article "Thailand: Economic Report" demonstrate that Thailand's economic development must follow three priority areas: bioscience and biotechnology, material science and metal and ceramic technology, and electronic engineering and information technology. Each element includes quality control and research and development. Furthermore, the authors state that the quest for technology is accompanied by long-term educational programs to sustain it.

Perez-Foguet, Oliete-Josa, and Saz-Carranza (2005) show the key points of the development of an education program for engineering studies set within the framework of the human development paradigm. The approach is to reduce poverty by promoting technology as a medium for human development. According to the authors, UNESCO (United Nations Educational, Scientific, and Cultural Organization) defines technology as a system of knowledge and information induced from research, experimentation and experience that allows the creation of a replicable process to produce goods and services. Hence, technology is directly related to all engineering and architecture professions and university degrees. The authors argue that technology can be part of the solution to the problems of under-development. They highlight its usefulness for sustainable management of water resources like sewage evacuation and disposal in cities in developing countries. Professional engineering sectors that can be taught are land and environment management, housing, water and sanitation and energy supply.

Lehr (2005) suggests that engineers improve quality of life. Activities or professional work that engineers tackle encompass installing filters for drinking water to eliminate bacteria and reduce stomach illnesses. They also

create, among other things, means for people to communicate better, and to manage environmental resources.

There is an unequivocal need in Mali for engineering expertise for garbage collection, waste processing to recycle plastic, car tires, junked cars, trucks, and to generate heat and power using steam plants.

Thulstrup and Koswara (2001) suggest that both developing and industrialized countries need a well-trained workforce in order to prosper; that the need is particularly urgent in science and technology. Further, there is a shortage of science and technology manpower in developing countries, and higher education in the subject areas is of mediocre quality. The consequence is increased brain drain.

Engineering education and job creation

Lall (2001) in the paper "Technological capabilities and industrialization" reviews the implications for industrial strategy of recent research on technological capabilities at the firm and national level. The author suggests that on a conventional level, it is assumed that in the context of the developing countries, major innovations occur in advanced industrial countries. Developing countries select and apply in a costless fashion the innovations that are useful or appropriate. The

unconventional approaches assigned indigenous technological effort to master new technologies, adapt them to local conditions, improve upon them, diffuse them within the economy and exploit them overseas by manufactured export growth and diversification and by exporting technologies themselves. Lall emphasizes the need for capabilities in human capital and its readiness to support physical investment and sustain technological effort. Hence, quality formal education is required for industrial development.

Job creation potential is the implication of Lall's analysis of capability building. According to the author, investments in capabilities (large pools of scientists and engineers) in Asia yielded the competitiveness and dynamism needed to make them top in growth and export performance.

Need for Cooperative Engineering Education in Mali

Acquiring quality training, and armed with creative skills, graduates can have productive and remunerative lives in their own culture. The school model sought would be the cooperative engineering education programs growing in many universities in the United States. For example at the University of Pittsburg, the cooperative education program aims to enhance student engineer's educational experiences through a series of challenging, highly relevant "real world" work sessions. This is accomplished

by integrating a rotation of school and employment terms, enabling the cooperative education student to complement his or her formal classroom training with additional technical knowledge, hands-on experience, and financial remuneration.

For Mali, the creation of the educational institutions will require buildings to house all school activities. With a new developing educational institution, the concept of a cooperative education for engineering students could include student help to build sections of the university as tuition payment, while allowing them to learn engineering skills.

A literature review demonstrated the need for engineering education in developing countries, including Mali. My objective is to build prestigious, comprehensive, engineering schools in each administrative region. The outcome could result in the training of highly qualified engineers who could then attract foreign direct investments in Mali. Graduates could also use their know-how to tackle the problems facing Mali today, including recycling waste plastics, reusing car tires for housing wall paneling, and producing electricity using solar, or wind power or steam plants. A technology based university would most certainly

reduce brain drain, since Mali presents unlimited gainful opportunities for an engineer.

Summary

This study may provide insight that will give Mali new perspectives on education. The insights might be that Mali students' career choices are based on an opportunity to be creative, intellectually challenged, and receive financial rewards through gainful employment or through the translation of their know-how into entrepreneurial endeavors that can be socially and economically viable.

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