
Meeting the Challenges of Technical/Vocational Education: The Ugandan Experience

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Abstract

All over the world, countries are struggling with different challenges with regard to education and training. As the labor market changes its dynamics, public policy makers are getting more concerned about the output of education and training. More and more, the importance of skills training and workforce development is being emphasized. Various strategies are planned according to country-specific situations. This article describes the technical, vocational and business education system in Uganda, and how its challenges are being addressed.

Introduction

The Republic of Uganda is a landlocked country situated in the eastern part of Africa. The countries of Rwanda, Democratic Republic of Congo, Tanzania, Kenya, and Sudan surround its borders. It covers an area of approximately 240,000 square km and has a population of about 23 million people, 51% of which are below the age of fifteen years (Uganda Bureau of Statistics, 2001). Agriculture is the most important sector of the economy, employing 82% of the work force. Industry employs only 5%, and the service sector occupies 13% of the total workforce (1999 statistics World Fact book). Total labor force is estimated at about 9 million of which 86% are found in rural areas, and of which 35% are not economically active. The country's literacy level rose from 35% in 1995 to 65% in 2001 mainly as a result of the Universal Primary Education (UPE) program that saw primary school enrollment rise from 2.3 million to 6.8 million in that period.

This sharp increase in primary school enrollment poses great access challenges to the post primary education sector, technical/vocational education inclusive, which currently does not have the

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required capacity to absorb the primary school graduates. Besides access, the need for skills training for the youth and the overwhelming demand for a “skilled workforce” that has dominated the world labor market in the last decade, pose a challenge to workforce development systems in nearly all countries around the world, are Uganda’s challenges as well. This article describes the system of technical/vocational education in Uganda, points out the challenges facing this sub-sector of education in the country, and analyzes the attempts being made to address the challenges.

The Structure of Education in Uganda

The system of formal education in Uganda starts with primary schooling, which takes seven years. All those who complete the primary school cycle are expected to join secondary school, which takes four years at the lower level known as ordinary level (O’ level), and two years at the higher level known as A’ level (Advanced level), or join the technical schools which take three years at the lower level and 2 years at the advanced level. To proceed from one level to another, the students must pass the nation-wide standardized tests. There are also opportunities for O’ level leavers to join the Primary Teachers Colleges (PTC) or lower level health institutions. After this level the continuing student is expected to join a university, or a National Teachers College (NTC), or a vocational institution, which may be specialized in agriculture, business, technical or health. Figure 1 shows the linkages within the education structure of Uganda.

Technical education, in particular, is an overlapping three-tier system: craftsman level offered by technical schools and institutes, technician level offered through technical colleges and Uganda Polytechnic, and graduate engineer level offered through university programs. The technical schools offer three-year full time courses to primary school leavers leading to the award of Uganda Junior Technical Certificate (UJTC). Courses offered include Carpentry and Joinery, Block laying and Concrete Practice, Tailoring, and Agriculture.

Technical Institutes offer two-year full time courses leading to the award of a Uganda Craft Certificate (Part 1) and also one year advanced craft courses leading to the award of craft certificate (Part II). Courses offered include Carpentry and Joinery, Mechanics, Plumbing, Pottery, Leatherwork, Agriculture Mechanics and Electrical Installation. Students admitted to these courses must have passed the O’level examinations in Mathematics, Physics and English. The enrollment at this level is approximately 11,000.

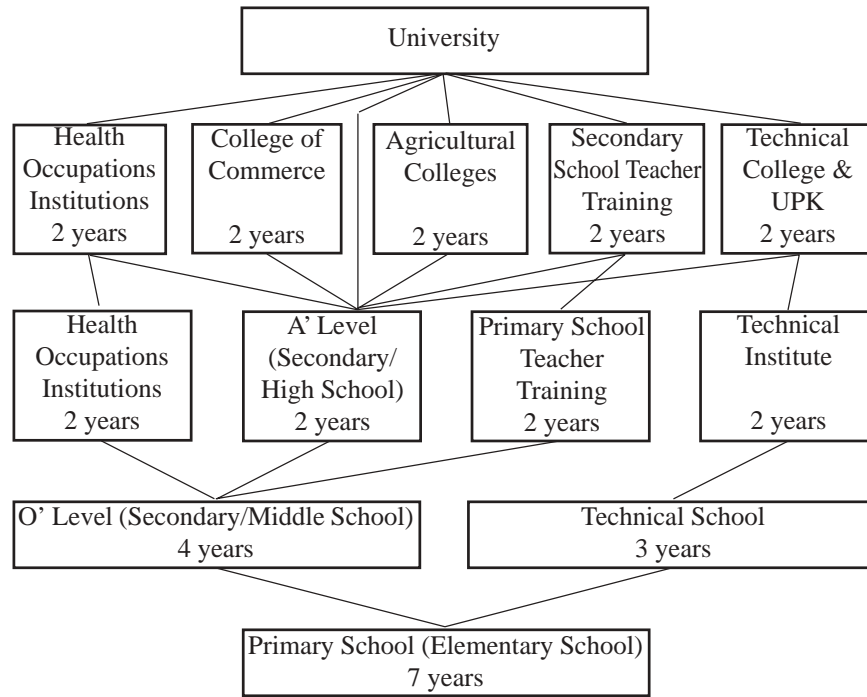


Figure 1. Linkages within the structure of education in Uganda

Technician training is carried out by Uganda Technical Colleges and the Polytechnic, which recruit A' level graduates who passed examinations in Physics and Mathematics. Courses are of two-year duration leading to the award of ordinary diploma in the traditional engineering disciplines of Civil, Mechanical and Electrical. The Uganda Polytechnic Kyambogo (UPK) offers additional courses in Water Engineering, Architectural Draughtsmanship, Refrigeration, Science Technology, Ceramics, etc. as well as a Higher Diploma.

Graduate level engineers are currently trained only at Makerere University in the disciplines of Civil, Mechanical, Electrical, Surveying and Architecture. In 2001/2002 academic year however, the Uganda Polytechnic Kyambogo (UPK), through a merger with the Institute of Teacher Education Kyambogo (ITEK) upgraded into a degree awarding institution known as Kyambogo University. UPK is expected to upgrade its courses to degree level, and award Bachelor of Technology degrees.

Vocational industrial education, on the other hand, is offered through the Directorate of Industrial Training with various Centers and programs within the country. The directorate is responsible for industrial training, apprenticeship training, trade testing and certification

and skills up-grading. The total enrollment per year is about 800 trainees. Courses offered include motor mechanics, electrical installation, welding and metal fabrication, carpentry and joinery, plumbing and pipefitting, building and construction, forging, machining and so on. Students are trained for three years of which 9 months are spent in industry.

Besides the pure technical courses, there are five Uganda Colleges of Commerce that train business technicians at a level equal to the technical colleges. There are also 26 health institutions, 5 agricultural institutions, one meteorological institute, and one survey institute at the same level. It is possible for students to join the university after successful completion of the two-year courses offered at these institutions.

The Historical Perspective

Technical/Vocational Education has historically been considered education for those students who fail to make it through the straight path, i.e. from primary to secondary to university. The general public saw this type of education as expensive, patronized by intellectually inferior students and associated with non-prestigious blue-collar employment. After completing primary school, a child who fails to go to secondary school may join a technical school. Usually the technical school was a no-alternative option and students would join it as a last resort. Even the parents regarded their children as failures and in disappointment 'dumped' them into the technical school. Similarly, a child who failed to go to a university would be 'dumped' in a vocational institution as a last resort to keep him in school. The situation was even made worse by the fact that technical and vocational education was terminal with no vertical mobility and access to higher education. Yet, students completing technical/vocational courses were ill equipped for industry or self-employment. Sometimes, a child would rather stay at home than join a technical school.

Current Status of Technical/Vocational Education in Uganda

Attitudes towards vocational education have changed a little over the years. Although it is still the wish of nearly all parents to get their children a university education, many of them now readily accept the alternative of technical/vocational education when their children do not gain access to the university. Students too, influenced by their parents, teachers and the labor market situation, have become more positive.

There still exists a disparity between technical/vocational education and general academic education with no formalized linkages, but it is now possible for students who go to technical or vocational institutions to join the universities at some stage in their career if they want. This is a major breakthrough and every effort is being made to formalize the linkages shown in the structure in Figure 1.

There are still people who believe that the aim of technical and vocational education is to provide an outlet for school dropouts, the term 'drop-out' being used to describe the group of students who do not join the secondary school path to university. This is partly because of little public understanding that the available secondary schools cannot absorb all those who successfully complete primary school. In fact, the current technical and secondary schools combined cannot absorb all those who complete primary school. The statistics in Table 1 show the available schools and enrollment.

There is yet another group of people who believe that technical/vocational education is a key to survival and should be given to everyone including those who cannot afford to go to school. This is especially illustrated by the missions of many non-governmental organizations (NGOs) that have set up vocational training programs in rural and peri-urban areas. Many youth are engaged in these programs, which are designed according to the individual needs of the particular community within which the NGO operates.

From the national perspective however, the aims and objectives of technical and vocational education in Uganda are:

- To stimulate the technical growth of students in order to make them productive members of the community; and
- To produce craftsmen, technicians and other skilled manpower to meet the demands of industry, agriculture, commerce and the general labor force.

Access to the technical and vocational institutions require a sound science and mathematical background. This has been one of the biggest limiting factors because performance in the two disciplines has usually been poor and so fewer candidates qualify. Sometimes, some of the institutions do not fill up, and the country faces critical shortages of skilled manpower of certain categories like artisans, technicians and associated professionals. Admissions are centralized and the universities admit first. The various technical and vocational institutions absorb the students not admitted by the universities.

Table 1
Education Institutions and Enrollment

Type/Staff/Enrollment	Number
<u>Type of Institution</u>	
Primary Schools	10,516
Secondary schools	623
Teacher Training colleges	64
Technical schools and Institutes	62
National Teachers Colleges	10
Uganda technical Colleges	5
Uganda Colleges of Commerce	5
Universities	7
<u>Total Teaching Staff</u>	
Primary schools	96,830
Secondary schools	17,534
Technical schools and Institutes	916
National Teachers Colleges	759
Uganda Technical Colleges	102
Uganda Colleges of Commerce	176
Other higher institutions	403
<u>Enrollment</u>	
Primary schools	6,486,000
Secondary schools	427,592
Teacher Training Colleges	21,472
Technical Schools and Institutes	16,489
National Teachers Colleges	11,130
Uganda Technical colleges	2,200
Uganda Colleges of Commerce	3,000
Other higher institutions	6,872
Universities	20,325

Source: Uganda Ministry of Education and Sports Statistics (1999)

Gender disparities do exist and as the UNESCO Publications (1995) rightly pointed out, vocational education is largely viewed as a domain for men and only in the traditional women dominated trades such as tailoring, home economics, and agriculture do we find substantial enrollment of the girls.

Technical/Vocational Education and Training in Industry

Industrial training is an integral part of all the courses in technical/vocational education. In each of the technical and vocational education and training institutions, including university, there is a department of Industrial Training, which organizes placement and supervision of students during their training. As already stated, students spend 3 months each year on the job industrial training, and during this time, lecturers visit the students to assess and discuss their training and progress in their programs. Unfortunately, industrial training does not form part of the assessment process in some courses, and so many students do not give it much significance. Institutions are considering grading Industrial Training and making it an examinable part of the courses.

Besides this practical field experience, there are also workshops, study tours and seminars organized by the training institutions. In those workshops and seminars, the workers and administrators from industry are invited to make presentations and discuss world of work experiences with the students. These are, however, limited and only depend on training institutions.

Lugujjo (1998) rightly pointed out that while Uganda has generally recognized the need to adapt technical and vocational education and training in order to produce a proficient worker and make such education more responsive to the social and economic requirements of the country, it still does not have a coherent policy to link such education and training to industry. The existing linkages between institutions and industry are therefore very weak and are not streamlined.

Government Involvement in Vocational Education

In July 1987, the government set up an Education Policy Review Commission to extensively review the education programs in the country with a view to making education more relevant to the needs of the society and an effective tool for development. The Commission submitted its report in January 1989, which led to a Government White Paper on Education of April 1992. The White Paper agreed with the following major recommendations on technical and vocational education: Integration of technical with business education; restructuring of technical and vocational education to cater to vocationalization from primary to post secondary levels of education, re-equipping of technical and vocational education institutions with tools, equipment, scholastic materials and the training of technical teachers. To-date, many of these recommendations have been implemented.

Business management and entrepreneurship is now a central focus in all curriculum review. The country's education system has been undergoing massive curricula review at various levels. In the primary school curriculum, Integrated Production Skills has been included to create career awareness and introduce the pupils to vocational skills at an early age. The skills included were basic concepts in Agriculture, Home Economics, Business and Entrepreneurship, and technological skills. At the secondary school level, curricula has not only been undergoing the review process, but also the secondary school structure has been reviewed to distinguish the general secondary education from the comprehensive secondary education. The general secondary education concentrates on academic subjects with a small proportion of vocational skills, and the comprehensive secondary schools have academic subjects but with a heavy emphasis on vocational skills training. At the tertiary level, curricula is being reviewed in nearly all courses, and particularly the technical/vocational school curriculum has been carefully reviewed to ensure vertical progression which allows the students to progress to university education if they so wish. Business management and entrepreneurship is considered at all levels.

Before the on-going review, curricula at both primary and secondary levels did not cater to the social and economic needs of the country. They did not adequately equip the individuals to become productive and self-reliant. The education system is still dominated by examinations at all stages without adequate provision for assessment of other objectives of the curriculum, such as promotion of moral values, practical skills, and participation in social and cultural activities. The Uganda National Examinations Board has now launched a program of Continuous Assessment (CA), which is supposed to fill the gap.

Administration and Organization of Technical/Vocational Education

In considering restructuring technical/vocational education, the government recognized the need to have a fully-fledged department to spearhead the vocationalization of education in the country. In 1999, a department of Business Technical and Vocational Education and Training (BTNET) was created in the Ministry of Education and Sports. Business was particularly included in the traditional 'TVET' phrase to highlight the importance that government attaches to blending business management and entrepreneurship to technical and vocational education and its overall role in the country's economic development. The department was immediately charged with the responsibility for

developing a policy framework and strategic plan for development of vocational education in Uganda. This was a big landmark in the history of vocational education in the country, for it gave it a national significance, which is a necessary environment for its development.

Furthermore, all the departmental training institutions that once were scattered under various ministries and departments were pooled together under the ministry of education and sports to enable central planning for vocational education. This structural adjustment was by no means an easy task. The Department of Business Technical and Vocational Education and Training (BTVET) was to have primary and residual responsibility for all business, technical and vocational education at all levels of the education system. It was to spearhead the vocationalization of education as envisaged in the White Paper on education. All former departmental training institutions, e.g. Agricultural Training Colleges, Paramedical Training Institutions, Forestry and Cooperative Colleges were transferred to the Ministry of Education and sports and placed under this new department.

Government has also taken on more vocational education institutions, which used to be privately owned and sought government assistance. Some of these private institutions could not afford to pay the teachers and buy training equipment, especially if the enrollment was low since their only source of funds was tuition paid by the students. Government now pays the teachers and services both their recurrent and development budgets. Expenditure on vocational education in general has increased significantly in the last three years. With this increase, many schools are currently undertaking construction and rehabilitation projects and it is hoped that this will lead to increased access and quality.

The problem of teacher supply and quality remains a big one. Most teachers are still untrained, and yet as Hammond (1999) correctly notes, “teachers’ knowledge and skills influence students’ achievement”. If the teachers are poor deliverers of their content, then they are likely to produce poor graduates with low motivation and confidence to work. Vocational teacher education greatly lagged behind because there were no institutions that prepared teachers for technical and vocational education and training. The institutions largely recruited secondary school teachers, and sometimes retained some of their own students without any training background and no in-service courses to make them better. A technical teacher-training course was introduced at the Uganda Polytechnic Kyambogo and a handful of teachers have been trained since then.

Establishment of Community Polytechnics

The most recent development is that Uganda government has planned to establish one technical/vocational education institution known as 'a community polytechnic' in every sub-county in Uganda. The need arose out of the Universal Primary Education (UPE) program that raised primary school enrolment from 2.3 million in 1995 to over 6.5 million in 1999. The bulge from this program is expected in the year 2003 when about one million children are expected to complete primary school. Government strategy is to expand both secondary and vocational education. Elwan (2000) in the East African Newspaper article "Uganda Hits UPE Target" clarifies that against the background of an expanded UPE program and increased enrolment, Uganda plans to construct 850 community polytechnics to provide basic technical skills to primary school leavers as an option to secondary schooling. The need for skills' training has been emphasized and it is government plans to establish the community polytechnics within the next five years. Funds for refurbishing existing polytechnics and higher institutions to complement the program have been set aside. The training of instructors for these institutions has already started and modalities for establishment of the community polytechnics are in progress. This is to be done in phases and the first batch of community polytechnics recruited their first students in 2002.

Within the framework of the Education Sector Investment Plan (ESIP), Uganda now faces three major challenges: access, equity and efficiency. The target is, therefore, to expand the education sector to accommodate more learners, eliminate disparities within education in terms of access and performance with special emphasis on removing gender and regional imbalances. Emphasis has also been put on in-service training for teachers to equip them with skills to provide quality, as well as improving the management and governance of the institutions.

Non-formal and Private Technical/Vocational Education

Technical/Vocational education in Uganda is very popular in non-formal settings. Non-formal and out-of-school technical and vocational education is taken to be an organized education activity outside the formal system. Many NGOs have vocational programs for youth and adult learners throughout the country. They also have specific skill development programs, which are available through a number of delivery mechanisms. These non-formal training centers have been very effective in establishing linkages with employers, especially in the areas of financing and labor market information. By design they are inherently

better able to offer short courses based upon occupational analysis, and to use part-time instructors from industry from well-managed, non-formal training centers, who have the demonstrated capacity for flexible response to a changing labor market. Private training providers of technical/vocational education are over 400, about three times the number of the government aided technical/vocational institutions, and they provide short and long courses to the public. The informal sector consists of small entrepreneurs and casual workers involved in a wide variety of activities, such as craftwork, workshop production, service activities, and commercial ventures.

Challenges Facing Technical/Vocational Education in Uganda

Even though Uganda has made significant progress in meeting the challenges of technical/vocational education a lot is still desired. The attitude towards vocational education is still very poor. Education is associated with white-collar jobs and everyone who goes to school aims at these jobs, which unfortunately do not match the number of graduates turned out each year. It is estimated that about 8 million out of 23 million Ugandans are unemployed and this figure was even made worse by the retrenchment program that saw 17,000 civil servants out of jobs in recent years as a result of the civil service reform program. In addition, 50,000 soldiers were also demobilized and all these have added to the pool of job seekers. Education faces a big challenge of training youth who will appreciate labor and value it as a method for exploiting their environment and a means to their survival.

Techniques for the modern wage sector are constantly changing because of technological developments and the pressures of international competition to increase productivity and quality while reducing costs. This type of work environment requires employees who can design, operate, and maintain increasingly sophisticated production techniques and equipment. Work habits and appropriate behaviors are also critical considerations in training today's workforce. As Gray and Herr (1998) put it, in high skills/high wage work employers rank work habits second to technical occupational skills. In fact, they argue, when the nature of the work is low skills/low wage, employers often indicate work habits are the only skills needed because the tasks can be taught quickly on the job. In Uganda, until technical/vocational education becomes a major factor in economic development and the sector plays its role in workforce education and development consistent with changing technology and workplace requirements, technicians of this caliber will remain inadequate.

To underscore the importance of teachers in any education system, the Report of the Education Review Commission (1992) stated that “no education system can be better than the quality of its teachers.” Highly qualified and motivated teachers lead to high education standards. Good technical and vocational training requires instructors who have technical skills, industrial experience and pedagogical skills. The ability of the education system to attract, constantly retrain, and retain these cadres remains a strong challenge.

Conclusion

Although the Government of Uganda has supported vocational education since independence in 1962, until recently, the proportion of expenditure on it has been very low and thus the supply and quality of vocational education has also been greatly affected. Attitudes towards vocational education remain largely negative, and there continues to be a disconnection between education and the world of work.

With significant attention and emphasis now being given to skills training worldwide, the country recognizes the enormous challenges facing this sub-sector that is highly driven by the rapid technological changes. The changing demand for modern training equipment, professionally up-to-date teachers, relevant curriculum, and an overall skilled workforce, all pose challenges. Because attempts are being made to address all these simultaneously, the impact is slower than many people would like to see. However, there is very strong political support and vocational/technical education faces an uphill task of developing the nation’s workforce.

Today, education is ranked amongst the top priority sectors of government. The mission of the Ministry of Education and Sports is to provide quality education, to eradicate illiteracy and to equip individuals with basic knowledge, skills and attitudes to exploit the environment for self and national development.

Implications and Recommendations

In view of the fact that technical and vocational training is very dynamic and expensive, there is need for strong institutional co-operation. Partnership with the private sector and all beneficiaries of education, especially joint strategic planning, will inevitably improve problem identification, prioritization of activities and, above all, achieve optimum utilization of scarce resources.

Second, there is also need to develop a vocational teacher development and management plan to address the current problem of both shortage and quality of vocational teachers. The training of instructors started at the Instructors Colleges is only a starting point which leaves much to be desired in terms of its ability to meet both challenges of supply and quality. Without updating the skill level of the teacher trainers, using modern technology and equipment, improving methods of training, attracting good students to the profession, improving teachers salaries and conditions of service, these instructors colleges will have little impact.

Third, curriculum planning and development is a dynamic process and must respond both to the needs of the individual and to the technical requirements of the job, as well as the changes in job patterns caused by technological and socio-economic changes. The quality of education and training depends a great deal on the ability of institutions to adjust the content of training to meet changing skill needs. This is especially important in training for strategic occupations that are rapidly changing under the impact of new technology. A multi-disciplinary approach is necessary involving professional groups and representatives of industry and general educators as well as the teachers of technical and vocational education. There is need to effectively coordinate both the public and private sector in the development and implementation of a new demand driven curriculum that will address the needs of the employers and the country. Research and evaluation of curricula in technical and vocational education must be a continuous process, and participation of the industrialists, employers, and employee organizations are crucial. The need for science and mathematics cannot be over-emphasized.

Fourth, there is need for constant professional development for both the administrators and field vocational educators. Investment in human capital is crucial to the planning process in vocational education and unless the administrators themselves are continuously exposed to new global trends and challenges, the planning and implementation process remains very shallow. Regular short-term courses/seminars are an absolute necessity in this regard. Exposure of the instructors to industry in a form of attachment and joint projects also help improve the teacher quality.

Fifth, there is need to sensitize the population about the importance of technical and vocational education and attract not just leftovers from academic education but first class students who can impact on technological innovations and economic development. In addition the public needs to be made aware that not everyone can go to

college and that university education is not the only way to success in life. There are other ways to win (Gray, K., & Herr, E. 1995).

Finally, there is serious need to assist institutions to practically integrate business and entrepreneurship skills into technical and vocational education and build their capacity for income generation. Institutions should operate units to supplement their incomes. The excess dependence on central government funds stifles the initiative of the students, teachers and school administrators and they do not take advantage of their local communities and local talents to generate income to supplement government funding.

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