

Transforming Higher Education for Effective Technical and Vocational Skills Delivery in Zimbabwe

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TRANSFORMING HIGHER EDUCATION FOR EFFECTIVE TECHNICAL AND VOCATIONAL SKILLS DELIVERY IN ZIMBABWE

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1.0 INTRODUCTION

The major thrust of technical and vocational education (TVE) worldwide is to address issues of youth unemployment, poverty and international competitiveness in skills development towards current and projected opportunities and challenges (McGrath, 2005). Such issues are crucial to Africa’s dignity and survival in the fast-changing global environment. African countries and their governments have been challenged to take cues from their industrialized counterparts to seriously consider the role of higher education and training in the quest for economic emancipation and social stability. In developed countries, higher education, for its part, is facilitating the elevation of human intellectual capital well above other forms of human endowment. The International Bank for Development and Reconstruction/World Bank (2000), for instance, has observed that:

“Today, global wealth is concentrated less and less in factories, land, tools, and machinery. ... Human capital in the United States is now estimated to be at least three times more important than physical capital. ... The developed world is reacting quickly, with education a major political priority. High quality human capital is developed in high quality education systems, with tertiary education providing the advanced skills that command a premium in today’s workplace.”

TVE has played an important role in charting the course for human civilization into modern times. Most of today’s increasingly more complex and specialized technical jobs require systematic strategies of handing down vital cumulative skills to younger generations. It has been noted that in developing countries, TVE is one of those sections of education given much less priority in policy formulation, funding and monitoring than other sections such as basic education.

In this paper we analyze some pertinent developments in the technical and vocational education provision in Zimbabwe in recent years, and we report on a survey of major policies and activities that promote and recognize the place and role of technical and vocational education in Zimbabwe in relation to the demands of this type of education for the economic development of the country. The challenge to transformation in our developing economies is whether to emphasize cultural and contextual differences and national idiosyncrasies instead of international similarities, competitiveness and comparative indicators. (Watson, 1994). In order to play its part well as leading and advising other sections of national education, higher education must itself be seen to transform.

2.0 CONTEXT AND ISSUE

The conception and delivery of both TVE and higher education in Zimbabwe is undergoing a rapid transformation due to both internal and external forces. There has been an accelerated push in recent years for wider access to college and university education as more students completed secondary school. The demands for relevant education to suit the evolving socio-economic needs and the industrial complexion of the country have also contributed to the need to re-examine the scope, content and processes in higher education delivery in the country. The expanding higher and tertiary education sector itself has required appropriate human capacity to shape and sustain it. Advancing technological changes have created a demand for continuous skills upgrading, and, as in other areas of education, there has been the need to upgrade TVE qualifications from certificate and diploma to degree level as the standard operating qualification. Comparative analysis of global and regional developments in the structuring and delivery of technical and vocational education have influenced a rethink and refocus. An example is the amalgamation of higher education institutions in neighbouring South Africa, resulting in the former technikons becoming universities of technology, has stirred local players into action. The concept of regional convergence in vocational education and training policy, according to McGrath (2005), provides opportunities for member countries in Southern Africa to learn from each other.

Zimbabwe's erstwhile loosely managed and supply-driven system of TVE provision by government took criticism from various quarters during the nineties. Consequently, a major push for policy change came from the government-owned polytechnics and technical colleges. Around year 2000, through the Committee of Principals of Polytechnics of Zimbabwe (CPPZ), representations were made on the following key issues, among others:

- The apparent marginalization of technical and vocational education and training (TVET) in the country
- The integration of TVET at appropriate levels in the education system.
- The transformation of TVET so as to closely address the needs of local industry, commerce and society at large in the real world of production and economic enterprise.
- The introduction of degrees offered independently by approved TVET institutions (polytechnics and technical colleges).

As a result of this initiative, government responded positively and now steps are being taken to address all the issues raised. Polytechnics can now offer degree programmes initially under an associate-ship agreement with the National University of Science and Technology through its relevant faculties. Three Bachelor of Technology degree programmes are already under way in different polytechnics, namely in Chemical Technology, Environmental Health, and Industrial and Manufacturing Engineering. Another three at advanced stages of being implemented are in Water Resources Engineering, Food Technology, and Wood Technology. It became necessary that four of the former state technical colleges upgrade themselves first to polytechnic status (to offer Higher National Diplomas) before graduating into degree-awarding polytechnics. This had staffing and logistical challenges.

The degree programmes now being run, it has been stressed, are to produce engineering and applied science technologists for industry and commerce needs. However the programmes are also inevitably training teaching staff for those institutions who will run and develop the same degree programmes. Industry, particularly the formal sector, has shown a lukewarm attitude towards these developments, preferring to devise their own staff training options for certain designated and specialized skills such as mining technology, railway component manufacturing, etc.

3.0 CURRENT POLICIES AND PROGRAMMES

Pre-independence Zimbabwe had an active and focused TVE system which was, however very small and discriminatory. Since independence in 1980, the country has adopted a series of policies democratizing educational opportunities in general, significantly expanding the primary and secondary school sector resulting in a tremendous increase in access and completion rates, and consequently increasing the numbers of school-leavers and job-seekers, as well as applicants to institutions of higher learning. At the secondary school level, an approach dubbed “Education with Production” was adopted in the early eighties aimed at preparing pupils for the world of work by integrating theoretical and practical knowledge functionally useful to certain occupations. The philosophy was to encourage young children to respect the dignity of manual labour, inculcating in them a work ethic and teaching the usefulness of productivity in the modern Zimbabwean socio-economic context, among other virtues. Thus as far as possible, all secondary schools have to offer a range of subjects in the academic, commercial and technical streams. The technical subjects on offer are listed in Table 1 below.

Table 1 : TVE Subjects Offered at secondary school

<u>Subject</u>	<u>GCE Level</u>
Woodwork	O
Metalwork	O
Building Studies	O
Agriculture	O
Technical Graphics	O, A
Design and technology	O, A
Fashion and Fabrics/Dress & Textiles	O, A
<u>Food and Nutrition</u>	<u>O, A</u>

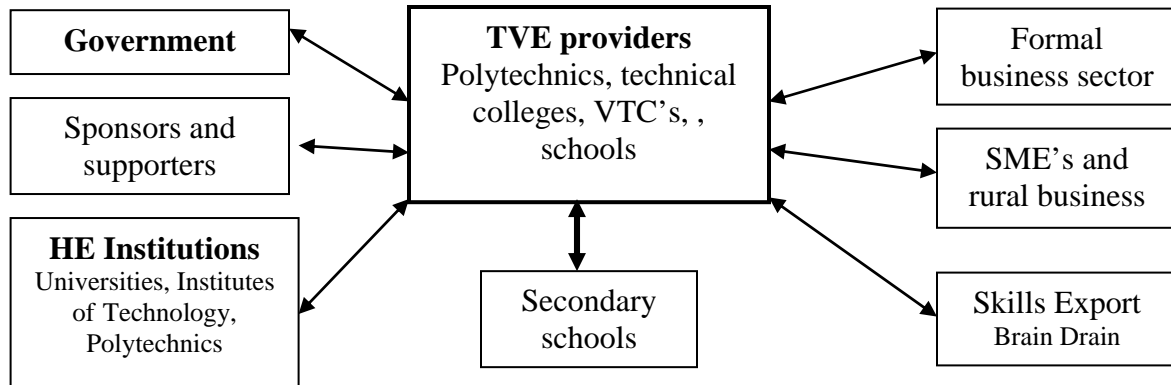
The adoption of a curriculum with TVE subjects has been received with enthusiasm by sections of society, largely parents and small-scale business people, for whom the basic knowledge and skills learned may have some significance. However the subjects have played second fiddle to the traditional academic subjects in that they are studied by the less mentally gifted students, as and are generally more affected by shortage of funds. Admission to tertiary institutions, including technical colleges, is not necessarily based on technical subject passes relevant to the courses students have applied for. There are fewer technical subjects studied at Advanced level than at the lower levels, implying that there are more school-leavers in these subjects who do not take their knowledge further than O level. The teachers for O level technical subjects hold three- year diplomas and certificates from specialist teachers’ colleges, while those for A level subjects are bachelor degree holders. The availability, stability and productivity of these teachers are a matter for concern for both the government and universities.

The main players in vocational and technical education in Zimbabwe are government, businesses and companies, communities, churches and non-governmental organizations. The position of TVE providers among other players and stakeholders is shown Fig 1below.

All state and some private TVE institutions operate on a system of national qualifications namely National Foundation Certificate (NFC), National certificate (NC), National Diploma (ND) and Higher National Diploma (HND) with the Higher Education Examinations Council (HEXCO) as the assessing authority. However other private institutions offer foreign qualifications such as the London City and Guilds, and the Pittman’s examinations. Consultations are being made on the creation of National Qualifying Frameworks in line with some neighbouring countries. Government mobilizes

business and donor support for TVE through the Zimbabwe Manpower Development Fund (ZIMDEF) [sic]. The National Manpower Advisory Council (NAMACO) [sic] is a regulatory body that contributes to policy implementation and monitoring of standards at TVE institutions.

Fig. 1 Interacting groups in TVE provision



4.0 CONTRIBUTIONS OF HIGHER EDUCATION TO TECHNICAL AND VOCATIONAL EDUCATION

For the purposes of this paper, two data gathering activities were embarked on. The first was a desk study on the curricula and research activities of institutions of higher education in Zimbabwe, which involved an identification of TVE-related degree programme offerings, and a document analysis of research activity in the area of TVE at these institutions. The second activity, aimed at gauging the impact of both higher education institutions and TVE providers on an increasingly crucial portion of the end-users, was a survey of TVE qualifications in a sample of urban and rural-based small and medium enterprises (SMEs).

(a) University programmes in TVE

There are some collaborative efforts to ensure that higher education personnel maintain formal links with TVE institutions. In the compilation and revision of a large number of syllabuses at TVE institutions, particularly at diploma level, there is evidence of consultation with relevant faculties of major universities. A number of university academic staff serve as External Examiners to college departments. Universities also offer degrees relevant to staff development needs of institutions, either directly or indirectly.

Direct programmes are those targeted for teaching staff of various levels in TVE institutions. These programmes give enrichment on the technical subject content plus relevant education content, information technology and leadership courses. For example the University of Zimbabwe offers the Bachelor of Education (Technical) which is an in-service programme to upgrade secondary school teachers of technical subjects with certificate and diploma qualifications so that they can teach also at Advanced Level, at Technical teachers' colleges or become administrators of technical education. This is one programme that has over the years kept the university in contact with secondary education and the schools, and has contributed to the capacity building for improved teaching and learning of vocational subjects at this level. There is now a Master of Education (Technical). Two other universities now offer a similar degree on a smaller scale in the Home Economics subject area.

The National University of Science and Technology (NUST) has for the past six years run a special degree programme, the Bachelor of Technical Education Honours Degree, primarily for polytechnic and technical college lecturers who possess certificate and diploma qualifications plus industrial experience as technicians or artisans. This programme is currently offered in the areas of Applied Art and Design, Civil and Construction Engineering, Electrical and Electronic Engineering, and Mechanical and Automotive Engineering. The impact of this programme has been significant in that most of its graduates have moved quickly into either higher responsibilities or into college administration. One of the major limitations of the programme is that it could not cater for differentiated college curricula such as in Electrical and Electronic Engineering where students study such diverse specializations as electrical power generation, power distribution, radio and wave technology, signals, computer engineering, instrumentation and control, etc.

The graduates of the above programmes are dedicated educational practitioners, with qualifications that are not normally attractive in other employment sectors, although the graduates themselves often want to move to greener pastures in non-teaching occupations.

Government support for these programmes is in the form of providing special study leave conditions to allow serving staff to attend either full-time or part time studies.

All universities in the country that offer general degrees with relevance to TVE subject areas contribute to the human resources and staff development. A number of graduates find themselves taking up college lectureship as either their first post-university job or permanently. All universities have special or mature entry provisions for enrolling adults on the basis of work experience and other attributes. Many college lecturers have taken this route to their personal staff development.

(b) Polytechnic contributions

Polytechnics have joined in the provision of higher education by offering higher diplomas and more recently Bachelor of Technology degrees. In these programmes staff development is of paramount importance even though programmes are primarily meant for producing better-skilled technologists and technicians for industry. Together with other colleges, polytechnics have begun offering entrepreneurship courses to all their students to orient them into a culture of employment creation, setting up and running small business enterprises. Polytechnics also regularly offer short hobby courses under their adult and continuing education programmes. They are useful for the self-initiated, but do not provide full expert knowledge and skills for required by employers. One Institute of Technology opened in the early eighties is under transformation into a university. It is offering a wide range of bachelor of technology and engineering degrees and has started several masters degree programmes

(c) Contribution of TVE trained personnel to SMEs

The survey was carried out in the city of Bulawayo and at a rural-based growth point 60 kilometres out of town. A sample of ten SMEs in the urban and ten in the rural area were conveniently selected and the owners/managers were interviewed. The nature of business engaged in included automotive repairs, welding and sheet-metal fabrication, electrical repairs and installations, catering, carpentry and woodworking, tailoring and clothing design, and plumbing. The study found that there was a general dearth of certificate to diploma qualified personnel in both urban and rural-based SMEs. All rural-based entrepreneurs operated virtually one-person businesses, while in the urban area the number of staff ranged from one to twelve (mean 3.9). Table 2 below shows the distribution of qualifications among workers in the sampled businesses. The largest numbers of employees were found in three categories: those who had attended job-relevant short courses prior to being employed, often soon after leaving school (26.6%), those who had had no relevant training in the area of their current jobs (24.1%), and those who attended job-relevant short courses after being employed. This

shows a staggering 72.2% of the workers in the sample with sub-standard qualifications. Clearly the influence of TVE institutions is not significantly reaching out to this employment sector.

Table 2: Qualifications of SME workers

<u>Skills Qualification category</u>	<u>Urban</u>	<u>Rural</u>	<u>Total %</u>
Apprenticeship trained	2		2.5
Part time in-service training (e.g. City & Guilds)	2		2.5
Post-employment full course (NC, ND)	4		5.1
Post-employment short course (+ trade test)	3	2	6.3
Post-school Pre-employment (full course NC, ND)	9		11.4
Post-employment short course (No Trade test)	15	2	21.5
No skills training	17	2	24.1
Pre-employment short course	17	4	26.6
TOTAL	69	10	100.0

(d) Research and Community Outreach: capturing the TVE needs of local communities

Research and development (R&D) activity is generally low in higher education institutions in Zimbabwe (Maunde, 2003) and particularly in the technical subject areas. Although it is key business in universities, it is done often for the return on investment, and as long as TVE remains poorly financed and bureaucratically controlled, researchers will stay aloof. A biennial International Conference on Appropriate Technology was recently inaugurated in Zimbabwe jointly by the National University of Technology and Howard University in the United States of America. The Planning committee consists of academic staff from the two universities. During its first and second conferences in 2004 and 2006 respectively, of the nearly 40 research papers presented, more than half of them reported on research projects of a technical nature that are of interest and significance to TVE institutions. However none of the reports showed the extent of collaboration between universities and TVE institutions, some of whom have high standard equipment and facilities to carry out similar research. Research and innovation in polytechnics and technical colleges is very low because the majority of staff are lowly qualified and have heavy teaching loads.

The visibility of universities to SMEs is very minimal. All respondents in the SME sample reported that they had had no direct contact with a university in their knowledge and skills development career.

5.0 CHALLENGES AND RECOMMENDATIONS

Meaningful technical and vocational education and training require substantial inputs: materials, equipment and appropriate facilities. The provision and maintenance of top quality modern training equipment remains a challenge to both universities and TVE colleges in Zimbabwe. So does funding for research and development. Without appropriate home-grown research, developing countries will remain dependent on research results from others. In addition to problems common to other developing countries, Zimbabwe is currently facing a progressively crippling economic meltdown occasioned by the sociopolitical situation that began around the year 2000. The full and accurate impact of this meltdown would require a separate study and discussion. Suffice to say that, despite the problems, education provision at the various levels has continued to show endurance and perhaps growth.

Another challenge for TVE institutions is the brain and skills drain, affecting both the quality and continuity of training programmes. TVE institutions lose staff occasionally to industry and other

destinations. In recent years, as new universities opened, and both old and new lose qualified staff to foreign destinations, they resort to 'poaching' the few highly qualified staff in TVE institutions. This has tended to weaken the spirit of wholesome and expert provision, and it has created tense competition for scarce human resources.

The preliminary observations in this study point to a need to carry out more stakeholder-wide consultations and needs analysis in order to determine the best synergy between higher education, TVE and the industry, particularly SMEs. Clearly the operating conditions and outputs of SME's in Zimbabwe, and their contribution to the economic development, are not as desired. The promulgation of policies, the education and conscientisation of people and the resourcing for development must go in tandem.

The apparent loss of interest on the part of large-scale formal businesses in the affairs of TVE and the recent developments therein shows a separation of efforts between them and government as the supplier and guardian of TVE. Government and the private sector have little option but to jointly chart a course for sustained dialogue and action, mindful of the murky waters and uncertain terrains that characterize the route of technological change and development. The fruits of TVE are more immediate to industry and long-term to government. Industry adopt a sectoral interest at issues while government addresses the same wholesomely. The African scenario where government, standing for national interests and local purpose, is often pitted against industry, representing international corporations and off-shore markets, must be addressed cautiously. Moreira (2007) suggests the building of alliances between communities, development practitioners and researchers, bringing diverse levels of expertise and knowledge together to create platforms for dialogue and decision-making that ensure viability, ownership and sustainability.

Higher education has the capacity to harmonise divergent interests through searching for workable models and modifying them for the entire spectrum of the local environment. The meager national resources are better utilized in collaborative ventures such as shared capital developments and co-sponsored programmes in institutions. This calls for a flexible approach to ownership and control of both inputs and outputs of the TVE system. Higher education should engage in deliberate efforts to reach out to all levels of the TVE system through capacity building, research and development. Ambitious African universities cannot avoid reform and transformation. According to Hassan (2007), first-rate and world –class universities must be built which will provide training and research in science and technology management, and have centres of excellence to strengthen links between education and research, among other ventures. Excellence in higher education is highly likely to breed excellence in the lower education levels.

6.0 OPERATIONAL ASPECTS

The challenge of lack of resources will always plague developing country dreams and initiatives for development, the main reason being the competitive instinct to catch up with developed countries. If there were no developed countries to emulate, would Africa be crying of lack of resources?

A starting point for dialogue between players in TVE is adopting determination, tolerance and transparency. This addresses the issue of management and control, as well as human resources development and monitoring. It also touches on financial and material resources, such as defining the sources and conditions attached to aid and assistance. Zimbabwe has a sizeable highly skilled and resilient human resources base, both within and outside its borders, and there are also friends and sympathizers who together can make a difference. Similarly an honest and noble venture such as TVE

development should not fail to attract enough financial and logistical support from local and international sources.

Collaborative efforts undertaken in the spirit of mutual benefit often reap many spin-offs. A joint venture in TVE research and development may well attract other investments such as tourism and technology transfer between partners. A possible threat to such a development may be the feeling of insecurity of the country in the face of opening many doors to outsiders. This can be monitored through signing phased agreements and flexible contracts that allow for periodical reviews. The mutual co-operation between higher education and industry in developed countries is an envy of many African countries. It takes a long winding road to reach there, especially for economically deprived countries striving for competitiveness with economic giants who have never been in the same situation.

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