Examining the purpose of technical education in Zimbabwe's high schools

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At the secondary school level, technical education programs serve numerous purposes ranging from narrow skill training to enhancing general education. However, implementation strategies may make the intended purpose of the educational program unclear. This study examined the purpose of technical education in Zimbabwe's high schools, as outlined in the official curriculum documents and perceived by the program implementers. Data were collected in Zimbabwe from policy documents and program implementers (technical teachers, teacher educators, and program managers) using a questionnaire. Lack of clarity and differences between the purpose as viewed by implementers and that in official documents were found. The study recommends that the Ministry of Education: a) take a position on the desired purpose of the technical education program, b) check and institute appropriate measures to correct mixed messages in the policy documents regarding the purpose of technical education, and c) direct adequate resources toward the desired purpose.

Technical education, Zimbabwe, high school, curriculum

INTRODUCTION

Education, particularly vocational education (career and technical education), has been seen as a tool for servicing the developmental needs of society. Education philosophers, who believe this, according to Mandebvu (1989), feel that the social, political and economic world outside the school can be changed, if not completely, then partly, by introducing vocational education in the content of education. Many countries have introduced vocational education as part of the formal school system but the most debated issue, particularly at the secondary school level, has been the purpose of vocational education (Hawke, 2000; Strong, 1990).

Vocational and technical education programs at the secondary school level serve numerous purposes. The purposes range from narrow skill training aimed at providing individuals with occupational skills for employment in specific jobs or a cluster of jobs, to enhancing general education (Hawke, 2000; Little, 1992; Lynch, 2000). Traditionally, training received in high school vocational education programs provided the skills and competencies necessary for gainful employment upon completion of the program (Burnett, Harrison and Miller, 1984). Over the years, technology in industry has developed from the artisan-craftsman stage, from emphasis upon manual skills, to the factory system operated and controlled by man (Lynch, 2000; McClurkin, 1996). Employers now require vocational and technical graduates to have soft or non-technical skills (Alpern, 1997; Clagett, 1997). These skills include:

> Knowing how to learn; competence in reading, writing, and computation; effective listening and oral communication skills; adaptability through creative thinking and problem solving; personal management with strong self-esteem and initiative; interpersonal skills; the ability to work in teams or groups; and leadership effectiveness. (McNabb 1997; Murnane and Levy, 1996; Oliver et al. 1997, as cited in Imel, 1999, p.1)

The demand for a workforce that is multi-skilled and capable of learning new skills more rapidly has changed the traditional purpose and implementation of vocational education (Brand, 1992). Strategies for implementing the shift in program focus are varied. Developed and developing countries such as Zimbabwe have responded to the trend in industry by shifting the focus of technical education programs from labor-specific craft programs to technical education programs of a general nature. However, from the implementation strategy, it is not clear whether the purpose of the program is prevocational or intensive skill training.

Overview of technical education in Zimbabwe

Zimbabwe follows a 7-4-2-3 system of education, (7 years of primary, 4 years of secondary, 2 years of advanced high school, and 3 years of college or university). Technical education is available from the last two grades in primary school through university. In primary and secondary schools, the technical subjects on offer include: building studies, fashion and fabrics, food and nutrition, metalwork, technical graphics, and woodwork. Not all primary schools offer technical subjects and not all technical subjects are offered in the few primary schools that offer technical subjects.

Secondary education is subdivided into three 2-year phases: Zimbabwe Junior Certificate (ZJC), Zimbabwe General Certificate (O Level), and Zimbabwe Advanced Level Certificate (A Level). The first two levels of secondary education are commonly referred to as high school. Every high school is supposed to offer at least one technical subject and the schools decide the subject to offer. In addition to technical subjects, various technical and vocational education courses are offered through vocational skills centres, privately owned institutions, technical colleges, polytechnics, and universities. The Zimbabwe Ministry of Education, Sports and Culture is responsible for the primary and secondary levels of education while the Ministry of Higher Education and Technology oversees tertiary education, which includes universities, technical and polytechnic colleges, vocational skills training centres, and teacher training colleges.

STATEMENT OF THE PROBLEM

In Zimbabwe, technical and vocational education was introduced before independence in former F2 (technical) secondary schools. These schools catered for 35 per cent of the 50 per cent black primary school leavers (Chinyamunzore, 1995) and were said to be for the less academically minded pupils who could not gain a place in a regular secondary school (Gumbo, 1986; Zvobgo, 1994). The technically-oriented schools gave pupils a sound background in carpentry, metalwork, building, needlework, cooking and agriculture to prepare them for employment as low skilled workers in industry (Mungazi, 1989; Nherera, 1999). The F2 secondary school curriculum, considered to discriminate against blacks from whites, became unpopular with the blacks and the schools were subsequently abolished (Mungazi, 1989).

Following the attainment of political independence in 1980, Zimbabwe's education system underwent many changes. Among these were the abolition of the two racially separated systems of education (Gumbo, 1986), and an emphasis on technical and vocational training (Chinyamunzore, 1995). The focus on technical and vocational training was aimed at reducing shortages of skilled workers, and was also viewed as a possible solution to the increasing youth unemployment

problem in the country (Nherera, 1999). Zimbabwe's education reforms from 1990 to 2001 were more qualitative in nature and focused on the relevance and quality of education and training through new approaches to content, technologies, and skill provision (Mumbengegwi, 2001). In the high schools, technical education programs shifted their focus from the labour-specific, skill-oriented technical programs to technical education of a general nature, with an emphasis on design and technology.

The staff to implement the new high school technical education program were the same professionals trained for the labour-specific, craft-based programs. New syllabuses were printed and in-service workshops held, but not all technical education professionals were retrained inline with the new focus. This implementation strategy raises questions on what exactly is being taught in the technical education curriculum. Besides, in the absence of set performance standards, the course objectives from which teachers derive the content for the various technical subjects are open to different interpretation, resulting in graduating students lacking uniform competencies. While the Ministry of Education and Higher Education (1996) acknowledges vocationalisation of the school curriculum and integration of vocational education into the general secondary school system, it considers these as challenges for the government.

The implementation strategy, to some extent, may have created confusion among educators who are uncertain of their roles (Strong, 1990), resulting in a program serving numerous purposes. Since program implementers greatly influence the curriculum offered or followed in the schools, having implementers who are unsure of their role is detrimental to the success and development of the educational program (Schumacher and Kahler, 1989). Therefore, if any growth of the program is to be expected, and if the new program is to be implemented effectively, it is important to establish whether Zimbabwe's technical education professionals understand the purpose of the technical education program they are implementing.

PURPOSE AND OBJECTIVES OF STUDY

This study sought to examine the purpose of the high school technical education program in Zimbabwe, as perceived by three groups of program implementers: technical teachers, technical teacher educators, and program managers. Specifically, the study aimed to:

1) determine the official purpose of the technical education program as stated in the Ministry of Education, Sports and Culture curriculum documents;

2) determine the purpose of the technical education program as perceived by the program implementers;

3) compare the official purpose of the technical education program against the purpose as viewed by the program implementers; and

4) provide recommendations based on the findings.

METHOD

The target population for this study was technical education professionals (technical subject teachers, technical teacher educators, and program managers [inspectors] for high school technical education program). Data for this study were collected in Zimbabwe from 452 technical education professionals: 397 high school technical subject teachers, 39 technical teacher educators, and 16 technical education program managers. The technical subject teachers were all from one district while the teacher educators were from three technical teacher colleges in Zimbabwe. The sub-population for program managers included all secondary school technical education program managers from all the nine educational regions in Zimbabwe.

The data were collected from policy documents and using a 20-item researcher-designed, closed-form questionnaire with a Likert-type scale. The 20 items (10 general education items and 10 craft-based education items) were statements on purposes of technical education derived from policy documents and literature review. Content validity for the instrument was established using a panel of experts. Respondents rated the extent to which they perceived each of the stated purposes of technical education to be currently emphasised in the high school technical education program, according to the following five point scale: 1 = Not emphasised; 2 = Slightly emphasised; 3 = Somewhat/moderately emphasised; 4 = Emphasised; and 5 = Strongly emphasised. The questionnaire was hand delivered to the technical teachers and teacher educators, and was mailed to the program managers.

RESULTS AND ANALYSIS

Official purpose of technical education in Zimbabwe

The Zimbabwe Education Act (1991) makes a commitment to move from quantitative expansion to quality and relevance in education through the vocationalisation of school curricula (Raftopoulos, 2003). However, other than statements of goals and objectives in technical subjects' syllabuses and circulars from the Education Officers (program managers) for technical subjects, there was no single document that spells out the official purpose of technical education in Zimbabwe's high schools. The Ministry of Education, Sports and Culture, and the Ministry of Higher Education and Technology (1998 cited in Raftopoulos, 2003, p.4) acknowledge:

> The absence of a comprehensive policy document on education and training…has lead to periodical political announcements, policy circulars and Chief Education Officer Circulars that are at times conflicting the source of direction to the sector.

Furthermore, The Nziramasanga Commission of Inquiry into Education (1999) simply recommended the continued expansion of educational facilities and equal emphasis of practical and technical subjects with other academic subjects, in the last two years of secondary schooling. The reason was that "Zimbabwe was graduating far too many students whose exam results were not good enough for university entrance, but who had no practical skills and therefore could not find employment" (Barnes, 2003, p.4). While the recommendation points to provision of technical skills at the secondary school level, it is not clear whether the program is failing to produce the skilled graduates because of other reasons or whether the focus of the program is not skill-oriented.

The lack of clarity and confusion in program purpose can also be seen in the subject syllabuses, which are used by the teachers to interpret the goals of the program and derive content. The Ministry of Education and Culture (n.d.), Zimbabwe Junior Certificate Syllabuses for Building, Metalwork, Woodwork, and Technical Graphics, lists the objectives for Metalwork as to:

> Develop skills in using tools and equipment safely; make simple articles that are useful in the home and community; analyze problems in situations in order to find suitable solutions; become aware of techniques and materials used in industry; develop self esteem and take pride in their work; and develop skills leading to self reliance. (Ministry of Education and Culture, n.d., p.13)

From these objectives, the students are expected to get exposure to the industries, gain basic skills and processes for a particular industry, and develop technical skills to a degree where they are self-sufficient. An awareness of the industry and acquisition of basic skills seem to be on extreme ends of the continuum with advanced skill proficiency. The dilemma for teachers becomes how much emphasis to put on basic skills without jeopardising the levels of technical proficiency to where the students are self-sufficient?

A similar situation appears in Building Studies and Woodwork. The objectives for Building Studies include:

> Develop a variety of manual skills; become aware of trades and professions in the building industry; become aware of the construction technology available and appropriate to their environment; design simple buildings; and become self reliant and committed to community development. (Ministry of Education and Culture, n.d., p.3)

Among the objectives for Woodwork are to "promote the acquisition of knowledge and technical skills leading to self-reliance; and make simple wooden articles that are useful in the home and community" (Ministry of Education and Culture, n.d., p.22).

Purpose of technical education as perceived by program implementers

Table 1 presents the mean responses and ranking (in parentheses) for each item regarding the current purposes of technical education in Zimbabwe's high schools, as perceived by the three groups of technical educators. In terms of the highest rated items, the technical teachers rated the following: "Develop in students an interest towards trade or craft oriented work" (mean = 4.47); and "Develop a high degree of skill in the use of basic tools for your trade (mean = 4.45). One of these was a general (prevocational) education item and one was a technical education item. The teacher educators also rated the same item as their highest. The program managers rated the same top three items as the technical teachers.

In terms of least emphasised purposes, the technical teachers perceived the following three items: "Provide exploratory experiences related to current practices in a specific business or industry" (mean = 3.42); and "Develop technical expertise in the operation of power driven machines used in related industries" (mean = 3.36). The teacher educators also perceived "Provide consumer knowledge that enables students to be wise consumers of industrial products" (mean = 2.82), and "Develop highly specialised technical skills necessary for the production of precise finished products" (mean = 2.87) to be least emphasised. The program managers rated least the same item as the technical teachers, and "Provide opportunities for the application of science and mathematics concepts in the technical fields" (mean = 2.48). While the ranking of the items (in parentheses) may vary slightly from one group to another, the 10 highest and 10 least rated current program purpose items were almost the same for each group.

Official purpose versus the perceived purpose

The official objectives of the technical education program in Zimbabwe's high schools focus on enhancing general education (awareness of trades, professions, and materials in the respective trade areas) as well as on development of technical skills to a level where students are self-reliant. This was also evident from the ranking high of general education and skill-oriented vocational education items by the program implementers, implying that the program has not changed its focus in the eyes of other program implementers. On the other hand, perceptions of members of the public and academics on the purpose of the technical education program confirm the confusion, lack of clarity of purpose, and need for craft-based program. For instance, a Zimbabwe Congress of Trade Unions, Chief Economist felt:

> The school-leavers have no experience, no adequate practical skills. What they have is academic education, which has imbued them with high aspirations for white-collar jobs. What they need to improve their chances of (self) employment are opportunities for work experience on the labor market. (Kanyenze, 1997, p.14, as cited in Raftopoulos, 2003, p.7; see also Munowenyu, 1999)

While this observation favours skill-oriented technical education, the attack is not on the current purpose of the technical education program, because the technical education program may not be failing in its purpose, after all.

Table 1. Mean Responses, Ranks and Degrees of Differences on Current Purposes

Item[a]	Purpose of Technical Education	Mean Response[b] and Rank for Each Item		
		Teach[c]	Educ[d]	Mgr[e]
5(G)	Develop in students an interest towards trade or craft oriented work	4.47 (1)	3.82 (1)	4.31 (2)
13(T)	Develop a high degree of skill in the use of basic tools for your trade	4.45 (2)	3.69 (4)	4.00 (3)
4(G)	Develop technical skills of a general nature such as measuring, planning, drawing etc.	4.36 (3)	3.72 (2)	4.56 (1)
18(T)	Develop technical skills to a degree where the students are self-reliant	4.28 (4)	2.97(17)	3.31(12)
1(G)	Provide career education to assist students in making informed and meaningful occupational choices	4.25 (5)	3.13(10)	3.50(19)
20(T)	Prepare students for enrolment in highly skilled post secondary school technical education programs	4.15 (6)	3.56 (5)	3.69 (7)
15(T)	Develop safety skills related to a specific occupation	4.09 (7)	3.72 (3)	3.50 (8)
3(G)	Develop human relation skills that will enable students to work cooperatively with others in various fields	4.08 (8)	3.23 (7)	3.44(10)
6(G)	Develop general problem solving skills related to job situations	4.05 (9)	3.18 (9)	3.13(14)
12(T)	Develop in students basic home skills useful in the home or for leisure use	3.94(10)	3.03(13)	3.75 (4)
19(T)	Develop highly specialised technical skills necessary for the production of precise finished products	3.91(11)	2.87(19)	3.13(15)
2(G)	Provide opportunities for the application of science and mathematics concepts in the technical fields	3.79(12)	3.10(11)	2.44(19)
11(T)	Develop manipulative skills for the purpose of fitting persons in specific industries	3.77(13)	3.00(15)	3.69 (6)
10(G)	Provide basic theoretical knowledge on key materials commonly used in Zimbabwean industries	3.76(14)	3.05(12)	3.78(11)
16(T)	Develop specific employment skills needed to enter a particular occupational field	3.74(15)	3.23(8)	3.75 (5)
9(G)	Provide consumer knowledge that enables students to be wise consumers of industrial products	3.70(16)	2.82(20)	3.19(13)
8(G)	Develop general technical skills applicable to various occupational clusters	3.54(17)	3.00(14)	2.88(16)
7(G)	Provide occupational information pertaining to a broad range of occupations	3.52(18)	3.31 (6)	2.81(17)
17(T)	Provide exploratory experiences related to current practices in a specific business or industry	3.42(19)	2.95(18)	2.56(18)
14(T)	Develop technical expertise in the operation of power driven machines used in related industries	3.36(20)	3.00(16)	2.13(20)

[a] (G) = General education item, (T) = Technical education item; [b] Mean response on a 1 to 5 scale: 5 =Strongly emphasized; 4 = Emphasized; 3 = Somewhat/moderately emphasized; 2 = Slightly emphasized; 1 = Not emphasized; [c] Technical Teachers; [d] Teacher Educators; [e] Program Managers

DISCUSSION

With mixed messages from statements of objectives in the syllabuses, and the emphasis of both the general education and skill-oriented technical education items, the official purpose of technical education in Zimbabwe's high schools is unclear. The lack of program focus and confusion of purpose is aptly put by a discussant to Nherera's presentation (1999) who questions:

> What exactly is currently being taught in the technical education curriculum? Are the graduates of the program able to go out and create their own employment or do they learn so that they can only go out to look for employment in someone else's firm? These are the questions that the purpose of the technical education program should address.

Commenting on Zimbabwe's technical education curriculum, Munowenyu (1999, p.53) noted, "The present curriculum in Zimbabwe is failing...to help make school-leavers become better skilled, educated and confident problem-solvers. The solution is to introduce meaningful basic vocational education in schools." This observation and recommendation implies that the current program is not providing adequate technical skills, if that is what is intended, and is focusing on pre-vocational education. It is therefore, not surprising that the World Bank Group (1997) recommended overhauling curriculum toward vocational needs to allow specialisation of skills by revisiting academic (F1) and technical (F2) secondary school systems. The way forward will depend, among other things, on the available financial and material resources, the education system, and the country's social and economic environment (Gumbo, 1986).

Given the increasing unemployment situation (now at 65%) and the worst economic hardship the country is experiencing, the question to ask at this point is whether Zimbabwe needs to revert to the F2 type of vocational training as a strategy for unemployment (Nherera, 1999) or continue to focus on pre-vocational technical education to enhance general education? This issue needs to be debated by all concerned parties (for example, educators, industrialists, economists, funding agencies, and politicians) before a recommendation can be made. Implementing a craft-based technical education program in all secondary schools will be costly and is not possible under the present economic conditions. It is likely to put a bigger dent on the insufficient available resources. On the other hand, opting for the craft-based program in selected high schools will need to be examined in the context of the unpopular F2 secondary schools. This will ensure the program does not dampen the motivation of the program implementers who for a long time, have suffered from the negative stigma attached to craft-based technical subjects. At the same time, maintaining the status quo is not a solution, as uncertainty of roles among program implementers will breed frustrations; and produce students that lack required competencies – a situation that has serious implications on their employability.

CONCLUSION AND RECOMMENDATIONS

There was no single document that spelt out the official purpose of the technical education program in Zimbabwe's high schools. In addition, the statements of objectives in the technical subjects' syllabuses were unclear, provided mixed messages, and were confusing on the exact purpose of the program. At the moment, the exact purpose of the technical education program in Zimbabwe's high schools is not well defined. Therefore, the Ministry of Education Sports and Culture in Zimbabwe needs to spell out the desired purpose of the program, check and correct the mixed messages, as well as provide policy documents that clearly spell out the purpose of the technical education program in high schools. In addition, once the desired purpose has been spelt out, there is need to direct adequate resources toward the desired purpose.

The results from this study are important for the organisation and smooth operation of the technical education program in Zimbabwe. In particular, the following lessons can be learnt:

1) by comparing the program purpose as outlined in the policy documents with the interpretation of the program implementers, can help adjust the direction of the program;

2) by measuring differences in interpretation of policy documents, may reveal mixed messages or lack of clarity in the official documents; and

3) by measuring the perceptions of the different program implementers, can help identify what group of technical education professionals is out of line and needs in-service training.

The research methodology used and results obtained can be of use to other technical education systems in developing countries that are facing issues of program purpose.

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