Perceptions of Technical Education Professionals Regarding the Purposes of Technical Education Programs in Zimbabwe's Secondary Schools.

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PERCEPTIONS OF TECHNICAL EDUCATION PROFESSIONALS REGARDING THE PURPOSES OF TECHNICAL EDUCATION PROGRAMS IN ZIMBABWE'S SECONDARY SCHOOLS

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agriculture and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy

in

The School of Vocational Education

by

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May 1999

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DEDICATION

I dedicate this dissertation to

my wife Emily, daughter Rumbidzai, and son Tanaka

whom I cherish

and

in memory of

the Late Dzidzai Mupinga (my mother)

for all that she was

and for all that she helped me become.
ACKNOWLEDGMENTS

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ABSTRACT

The purpose of this study was to determine the current and ideal focus of the technical education program in Zimbabwe’s secondary schools. Data were collected in Zimbabwe from 452 technical education professionals (397 technical teachers, 39 technical teacher educators, and 16 education officers for technical subjects). The technical teachers were all from Harare region, the teacher educators were from three technical teacher colleges, and the education officers were from all the nine educational regions in Zimbabwe.

A three part researcher designed questionnaire was used to collect data for this study. Respondents rated 40 statements of purposes of technical education on a 5-point Likert-type scale, according to the extent they perceived 1) the technical education program to be currently emphasizing the stated purposes, and 2) according to the extent the stated purposes were ideal for the program. For each statement of purpose, a mean rating was established to determine the extent of emphasis. The emphasis mean ratings were used to calculate the program’s current and ideal focus (i.e. general education or technical skills). The focus scores ranged from 20 to 100, with a higher focus score indicative of a stronger technical focus, and a lower score signifying a stronger general education emphasis.

The three groups of technical education professionals perceived the same purposes to be currently being emphasized in the technical education program. However, the professionals differed on the ideal purposes of the program. The technical teachers preferred a more technical focus. Overall, the current focus scores for all groups were
around 60, (the midpoint), an indication that the program has no clear focus and that the program is emphasizing both technical skills and general education.

The study recommends the Ministry of Education in Zimbabwe to make a decision on what focus the technical education program in secondary schools should have. Once the focus has been identified, the Ministry should clearly communicate the desired focus to the program implementors. In addition, the Ministry should follow up and evaluate the technical education program to establish if the practice in the schools matches the desired outcome.
CHAPTER 1
INTRODUCTION

Over the last few years, the Republic of Zimbabwe has been in a state of transition and has been redressing the inequalities in education created by the colonial system, and extending more opportunities to the African majority. At the same time, Zimbabwe has been plagued by a huge problem of unemployed high school leavers, the majority of whom have pursued a largely academic education through the formal school years (Mackenzie, 1989). This, according to Madavo (1998), coupled with the industry’s failure to absorb the 300,000 school leavers who flood the job market every year, and an economy that generates a mere 10,000 jobs annually, has been described by industrial consultant Peter Harding, as a “time bomb waiting to explode unless something is done urgently” (p. 3). Realizing that with nothing being done to develop the skills needed by industry, “the youth of today would be the unskilled adults of tomorrow” (McMahon, 1975, p. 137), major revisions were made to the educational policies, especially vocational education.

Zimbabwe intensified its vocational education programs in secondary schools. Among the changes was a shift in the focus of secondary school technical education programs from craft-based, trade and industrial education to “technical education of a general nature” (Secretary’s Task Force Committee, 1990, p. 12). The former focus is more industry oriented than the latter. However, the policy documents from the Ministry of Education are sending mixed messages to the technical education professionals. It is not clear from the policy documents whether the technical subjects aim to equip students with job-entry skills for a particular occupations or cluster of occupations, or whether the
technical subjects enhance general education. In addition, the technical education program is implemented by professionals who previously taught the craft-based program. These professionals were not retrained for the new technical education program. Such a scenario is likely to create differences in perception toward the purpose/focus of technical subjects in high school among those people tasked to implement the program.

Zimbabwe cannot afford to let any differences in perceptions exist among the technical education professionals, especially when the products of the present education system have been largely criticized as “generally useless beyond the classroom” (Madavo, 1998, p. 8). In addition, technical education is expensive and, in Zimbabwe, it has a tarnished history dating from pre-independence. Given all the above, and the country’s shaky economy, it becomes imperative to conduct a study to establish whether the technical education professionals have a common understanding of the focus of the technical education program at the Ordinary level in Zimbabwe. It would also be important to establish what the professionals perceive to be the ideal focus of technical education programs in Zimbabwe’s secondary schools.

To put this study in the proper context, it is essential to describe the country of Zimbabwe: its geographic location, population and industries, its education system, and the development and challenges facing technical education programs in Zimbabwe’s secondary schools.

Geographic Location, Population and Industries in Zimbabwe

Zimbabwe is a landlocked country situated in the central part of Southern Africa. It lies to the north of South Africa, to the west of Mozambique and north-east of
Botswana (see map of Africa, Figure 1). The country covers an area of about 390,580 square kilometers—slightly larger than Montana in the United States or approximately twice the size of Great Britain.

Figure 1: Map of Africa

The Republic of Zimbabwe, formerly Rhodesia under British rule, was officially established in 1980. It has a population of 12 million (1995, July est.) and has a diversity of races, cultures and religions (ABC, 1997). Approximately 98% of the population consists of Africans (Shona 71%; Ndebele 16%; and 11% others), while one percent are Asians and Coloreds (mixed race). The remaining one percent is of European descent, which is "a significant factor in shaping the structure of the educational system" (Edwards & Tisdell, 1989, p. 12).

In common with many other African countries in Southern and Eastern Africa, Zimbabwe is predominantly a producing country—with approximately 60% of its labor
force employed in agriculture (Edwards & Tisdell, 1989). Its major export earnings come from agricultural produce such as tobacco, cotton, and sugar (around 30%) and from minerals such as gold (10%) and ferro chrome (10%). Major industries include mining, steel, clothing and footwear, chemicals, fertilizer, foodstuffs, beverages, transportation equipment, and wood products (ABC, 1997).

**Education in Zimbabwe**

Education in Zimbabwe is categorized into program levels which lead to acquisition of certificates, diplomas, and academic degrees. Zimbabwe uses a 7-4-2-3 education structure: seven years of primary education, four years of secondary education, two years of upper or advanced secondary education, and three years of post secondary education (see Figure 2, for the Structure of Education in Zimbabwe).

Officially, children enter primary school at the age of six and there is automatic movement between the grades. The secondary school is divided into three two-year levels. The lower secondary school level is called the Zimbabwe Junior Certificate (ZJC). The middle secondary level is called the Ordinary level ('O' level), and the upper secondary school is called the Advanced level ('A' Level). The final classes at junior, middle and upper secondary school levels are also referred to as Form II, Form IV, and Form VI respectively.

Zimbabwe has a national system of education. The curricula for elementary, lower secondary, and upper secondary is promulgated by the Ministry of Education. The principal agency assigned this task is the state's Curriculum Development Unit (CDU).
Figure 2: Zimbabwe’s Education and Training Ladder
According to Jansen (1991), the manner in curricula policy is managed and implemented in Zimbabwe is complex and varied, but strongly linked to official policy. He described the process of curriculum development in Zimbabwe, as essentially having three steps:

1. The CDU, which is tasked by the Ministry of Education, compiles a syllabus for a specific school subject that contains an outline of the various topics and sub-topics to be taught in the nation’s school system.

2. The syllabus is then made public, and national publishers are invited to submit draft of textbooks conforming to the country’s syllabus.

3. Drafted textbooks are forwarded to the CDU for evaluation, in terms of how they conform to the country’s socialist goals.

Developing curricula in this manner applies to all academic and technical school subjects in Zimbabwe. For the examinations, students sit for public examinations at the Zimbabwe Junior Certificate level, Ordinary level and Advanced level. The examination results at ‘O’ and ‘A’ level determine progression to the next school level or training program. Passes at ‘A’ level determine entry to local universities where most programs last for three years, except for Engineering, four years, and Medicine, five years.

Besides the academic programs, Zimbabwe provides vocational education and technical training in high school and technical colleges. In the high schools, vocational education is offered alongside academic subjects at nearly 1,200 of the 1,500 schools (Farmer, Taylor & Hwang, 1996). At the post secondary level, technical training is provided at seven technical colleges, four agricultural colleges and two universities. Training for secondary school technical subject teachers is provided at three technical
teacher colleges, Belvedere, Chinhoyi and Gweru. Prior to 1995, teachers graduated from these colleges with a Certificate in Education but now they are awarded a Diploma in Education. The two universities providing technical training are the University of Zimbabwe (UZ), which offers the Bachelor of Education Degree, and the National University of Science and Technology (NUST), which offers the Bachelor of Technology Degree. The university technical programs prepare students for industry, supervisory positions in the Ministry of Education, and teaching positions at advanced high school level and tertiary institutions.

Vocational and Technical Education in Zimbabwe

The development of technical education in Zimbabwe can be viewed in the context of two eras: 1) pre-independence and 2) post-independence. To appreciate Zimbabwe’s enthusiasm for post-independence educational innovation, one must understand the rigidity of the educational policies and practices of the colonial period (Mungazi, 1985). Furthermore, the colonial education system inculcated attitudes and views toward education that continue to prevail in the post-independence period (Jansen, 1991).

Historical Perspective of Technical/Vocational Programs

Before independence, a segregated system of education existed to serve the racially defined communities. Under the same Ministry of Education, there were two separate and distinct departments: the “European” and “African” education departments. The two departments were different in terms of regulations and budgetary provisions (Dorsey, 1989; Mungazi, 1986; Nhundu, 1997). With such a segregated structure and unequally distributed resources, the Blacks received a second class education compared to
the Whites. African schools were characterized by a heavy emphasis on manual work, manual training and practical education for the entire eight-year period of primary education (Mungazi, 1986). In addition, the education system for Blacks was very selective to ensure that only a few got the available places. Only a very few, 12% of the primary school output, who survived the screening structures in the system made it to the secondary schools (Nhundu, 1997).

In 1966, a ten-year plan to establish 300 two-year junior secondary schools was unveiled. This was a result of increasing numbers of primary school-leavers unable to get places in secondary school, the lack of employment or further training, and the pressure from the Blacks for equality in educational opportunities (Mungazi, 1986). The schools were to cater for an additional 37% of the primary school output, while 12% would be selected for academic secondary schools (Dorsey, 1989). Graduates from the junior secondary schools were to be employed in industry, commerce and agriculture. Employers in these fields had complained about the unsuitability of the “narrow” academic education of Form IV school leavers (Mackenzie, 1989).

The junior secondary schools marked the introduction of craft-based, technical education or practical subjects in Zimbabwean secondary schools. Curriculum at these schools offered mainly trade and industrial education with “45% of the time being spent on practical skills” (Dorsey, 1989, p.12). The junior secondary schools later extended to offer the trade and industrial education courses over four year periods and became known as “F2.” Academic secondary schools were designated as “F1.”
The F2 schools were considered by Africans to provide an “inferior” type of education: inferior to the type of education offered in the academic secondary schools, and inferior to the type of education that the government provided for white pupils in the country (Dorsey, 1989; Nhundu, 1997). In the end, F2 schools were not accepted by the black community and pupils opted to enter these schools only because they failed to find places in F1 secondary schools (Nherera, 1994). The F2 schools were discontinued in 1979.

Post-Independence Technical/Vocational Education

Upon attaining political independence in 1980, the government of Zimbabwe faced, among other problems, acute shortages of skilled manpower (Bennel, 1993). Just as had happened in other countries, the economic, social, and educational pressures led to increasing importance being placed on vocational education (Medway, 1989). The emphasis on vocational education was also necessary in light of a huge problem of unemployed high school leavers, the majority of whom had pursued a largely academic education through the formal school years, up through Form IV (Mackenzie, 1989).

Through the 1986 Education Plan, the government of Zimbabwe reaffirmed its commitment to the vocational education policy by making technical education compulsory for all pupils in secondary school (Nherera, 1994). Every pupil in secondary school is expected to study at least one technical subject (used here to mean vocational courses), according to the Zimbabwe Education Act (1990). The technical subjects, also historically referred to as practical subjects, fall into three categories: technical, commercial, and practical (see Table 1, for the classification of technical subjects in Zimbabwe).
### Table 1

**Classification of Technical/Practical Subjects in Zimbabwe**

<table>
<thead>
<tr>
<th>Technical</th>
<th>Commercial</th>
<th>Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Studies</td>
<td>Accounts</td>
<td>Art</td>
</tr>
<tr>
<td>Fashion and Fabrics</td>
<td>Bookkeeping</td>
<td>Agriculture</td>
</tr>
<tr>
<td>Food and Nutrition</td>
<td>Commerce</td>
<td>Home Management</td>
</tr>
<tr>
<td>Metalwork</td>
<td>Computers</td>
<td></td>
</tr>
<tr>
<td>Technical Graphics</td>
<td>Economics</td>
<td></td>
</tr>
<tr>
<td>Woodwork</td>
<td>Typing</td>
<td></td>
</tr>
</tbody>
</table>

Source: Secretary's Task Force Committee (1990)

The technical/practical subjects listed in figure 2, are offered mainly in high schools and technical colleges. The technical courses are introduced mainly for two purposes: to enhance general education, and to provide students with job skills for a particular occupation or cluster of occupations (Anderson & Ramp, 1993). However, in 1990, Zimbabwe shifted its vocational education emphasis from a craft-based technical education program (trade and industrial) to industrial arts education. The latter focuses on the study of technology, including industrial tools, materials, processes, products, occupations and related problems, but industrial arts education does not provide specific job or trade training (Wilber & Pendered, 1973).

The change in program focus was necessary since the idea to provide craft-based technical courses in all Zimbabwean secondary schools proved costly. This was a result of increases in secondary school enrollments from returning refugees and students who had
previously been denied access to education (Mackenzie, 1989). The switch in program focus was also appropriate in light of biases that had developed against the craft-based, technical education courses during the colonial era (Farmer et al., 1996; Nherera, 1994). Furthermore, there is evidence that both white and black parents in Zimbabwe favor the traditional academic education offered under colonialism rather than craft education (Jansen, 1991). Therefore, “any change in the direction of socialist education, such as craft in the curriculum would encounter strong resistance in black and white communities” (Farmer et al., 1996, p.14).

In changing the program focus, Zimbabwe adopted what Pullias (1989 as cited in Foster, 1994) calls, the “evolutionary” approach which “prefers to keep part of the old, install part of the new, and ‘ease’ into full implementation” (p.3). The same technical subjects, as they were and are still called, continue to be offered alongside the academic subjects in secondary schools. The technical subjects continue to use the same names and the program is implemented by mostly the same professionals who taught the craft-based program.

Literature on educational change underscores staff training as one of the most important factors related to effective implementation (Nhundu, 1997). But, these professionals were not retrained for the new program despite expressing a need to upgrade their professional and academic skills (Nyagura & Reece, 1990). The use of such professionals makes one wonder whether the current program is not a case of “old wine in new bottles” (Jones, 1989, as cited in Foster, 1994, p.12). It is not clear what the technical education professionals are focusing on in the technical education courses at the
Ordinary level. If the technical education program in Zimbabwe is to grow and develop, it must be respected, liked and understood by technical education professionals (Schumacher & Kahler, 1989). Hence, there is the need to establish what the technical education professionals perceive as the current focus and ideal focus of the technical education courses Zimbabwe's secondary schools.

Statement of the Problem

While the official education policy continues to advocate the inclusion of vocationally oriented courses in the school curricula and make all learning practically-oriented (Nherera, 1994), several factors seem to mitigate against these ideals. The policy documents, specifically the syllabi for technical subjects at Ordinary level, are sending mixed messages on the purpose of the technical education program.

On one hand, the subjects are said to “provide the many students who are not likely to go on to higher learning institutions with an education which will be functionally useful in the world of work” (Zimbabwe Schools Examinations Council, 1992, p. 1). This statement gives the impression that technical education courses at the Ordinary level focus on providing job-entry skills required by Zimbabwean industry. On the contrary, the technical/practical subjects in secondary school are said to provide “general education of a technical nature” (Secretary’s Task Force Committee, 1990, p. 8).

Compounding the problem of mixed messages is the continued use of the same subject names and technical education professionals trained for the craft-based technical education program but not retrained to implement the general technical education program. This scenario leads one to suspect existence of different focuses of the technical
subjects by the technical education professionals. With such a situation, it becomes unclear what exactly the current focus of technical education is or should be at Ordinary level in Zimbabwe, whether it is the provision of job-entry skills or enhancing general education. The problem is, “if those who develop or implement educational policy have misconceptions about the focus of their program, the future of such an educational program may rest in unstable hands” (Schumacher & Kahler, 1989).

If differences in perceptions exist, this may create problems of mismatch between policy expectations and practice. On the other hand, if the professionals interpret the purpose of the technical education program to be provision of job-entry skills, there is a strong likelihood that they are emphasizing hands-on or skill development, which is not cost-effective in Zimbabwe (Bennel, 1993). Therefore, it is important to establish what the professionals perceive as the purpose/focus of the technical education program at Ordinary level in Zimbabwe.

**Purpose and Objectives of the Study**

The overall purpose of the study is to determine the CURRENT focus and IDEAL focus of the technical education program at Ordinary level in Zimbabwe, as perceived by the technical education professionals. More specifically, this study is intended to:

1. Describe the three different groups of technical education professionals in Zimbabwe (defined as secondary school technical teachers, technical teacher educators, and education officers for technical subjects, in the Ministry of Education) in terms of the following selected demographics:
   a. job classification
b. gender


c. age level

d. educational qualifications

e. institution where professional qualification was obtained

f. major technical subject(s) studied at tertiary institution

g. main technical subject(s) taught in school

h. the other school level at which the professionals teach or have taught
   technical subject(s)

i. years of teaching experience

j. For secondary school teachers, in addition to the above demographics,
   identify the school's responsible authority and geographic location of the
   secondary schools, and

k. For education officers, describe their years of working experience as
   education officers.

2. Describe the degree of emphasis that is being placed on each of a series of stated
   technical educational program purposes at the Ordinary level as it CURRENTLY
   operates, as perceived by each of the three groups of technical education
   professionals.

3. Describe the degree of emphasis that should be placed on each of a series of stated
   technical educational program purposes at the Ordinary level as it should
   IDEALLY operate, as perceived by each of the three groups of technical education
   professionals.
4. Determine the focus of the program as it CURRENTLY operates at the Ordinary level for each group of technical education professionals.

5. Determine the focus of the program as it should IDEALLY operate at the Ordinary level for each group of technical education professionals.

6. Compare the CURRENT focus scores of the three different groups of technical education professionals.

7. Compare the IDEAL focus scores of the three groups of technical education professionals.

8. Compare the CURRENT focus score with the IDEAL focus score for each group of technical education professionals.

9. Determine if a relationship exists between the CURRENT and IDEAL focus scores and the following demographic characteristics:
   a. gender
   b. age level
   c. educational qualifications, as measured by highest professional education completed
   d. institution where professional qualification was obtained as measured by technical college, teacher training college and university
   e. major technical subject(s) studied at tertiary institution
   f. main technical subject(s) taught in school
g. the other school level at which the professionals teach or taught the technical subject(s), as measured by Zimbabwe Junior Certificate level, Ordinary level, teachers college, technical college and university

h. years of teaching experience

i. type of secondary school as measured by government or private, and

j. geographic location of school as measured by urban and suburban.

10. Determine if a model exists that explains a significant portion of the variance in each of the CURRENT and IDEAL focus scores regarding the purposes of technical education programs at the Ordinary level in Zimbabwe, from the following professional and demographic variables:

a. job classification

b. educational level completed

c. years of teaching experience

d. main technical subject(s) taught in school

e. the other school level at which the professionals teach or have taught the technical subject(s), and

f. institution where professional qualification was obtained.

Significance of the Study

Substantial literature concerning vocational education programs in other countries exists, but research evidence on vocational education initiatives in Zimbabwe is scarce.

While data from other countries might highlight some relevant issues like implementation strategies and potential problems, it is nevertheless necessary to establish what the
technical education professionals in Zimbabwe perceive about the current and ideal focus of technical education program at Ordinary level. The success of the technical education program in Zimbabwe depends, to some extent, on the availability of financial resources and personnel knowledgeable on the purposes of the program (Boyle, 1981).

Early this year (1998), a presidential Commission of Inquiry into Education and Training was set up in Zimbabwe. The commission was to consult all sectors of the nation and recommend solutions to the current education system’s failure to produce employable school-leavers, who can start their own self-reliant projects and contribute to economic growth (Madavo, 1998). The commission has had several suggestions pointing to the need to make changes to the technical education program. The suggestions, unfortunately, may have not come from technical education professionals. Therefore, it is important that the views of the professionals are heard to help shape technical education in Zimbabwe. The results of this study should prove beneficial not only to the Commission of Enquiry into Education, but to the educational system in Zimbabwe. The study will provide the feedback necessary for making any adjustments to the manner in which the technical education program is implemented at the Ordinary level. It is hoped that this will improve the implementation process.

Carrying out this study is one way of telling whether the technical education professionals subscribe to the purposes of technical education programs at Ordinary level in Zimbabwe. As noted by Wicklein (1992), the integration of technical education into secondary school general education curriculum cannot be implemented effectively until all members of the educational community share a clear understanding of the purpose of
technical education. Therefore, the success of the technical education program in Zimbabwe may depend on the extent to which the professionals understand the purposes of the technical education program.

In addition, any lack of consistency in perception among the professionals could have a detrimental impact to the field. The graduates from the technical education program would not possess a common base of technical competencies (Rogers, 1996). Such an outcome hinders any articulation efforts for the technical education programs (see Ministry of Higher Education, 1990). This study will provide curriculum developers, textbook authors, administrators of technical education programs, and teacher trainers with knowledge on areas of preparation and practice that require improvement for training future workers.

Limitations of the Study

Since the sample was drawn exclusively from Harare region, and not randomly from the entire population, the researcher cannot claim representativeness of his sample. Therefore, the results of this study are limited to the secondary school technical subject teachers in Harare region, technical teacher educators from three teacher’s colleges (Belvedere, Chinhoyi, and Gweru) in Zimbabwe, and the sixteen education officers responsible for technical subjects at the secondary school level. It should be pointed out that the teachers surveyed were in secondary schools in the immediate area of the capital city where the Ministry of Education is located. Therefore, how the teachers perceive the program purposes is likely to reveal the best example of the communication between the Ministry of Education and the technical teachers.
Definition of Terms

According to Nherera (1994), one of the problems that seems to hinder discourse in vocational/technical education is that the terms are used interchangeably, and defined differently. He adds, some terms that did not exist previously such as 'vocationalize' and 'vocationalization' have become acceptable jargon in the literature.

This section therefore, defines the main concepts, terms and definitions, as they are used in this study. The definitions used in this study are derived from international literature on vocational education, but are also used in their context and meaning to technical education professionals in Zimbabwe. As United Nations Educational, Scientific and Cultural Organization (UNESCO, 1984) observes, “educational terms are often linked to particular systems of educations which are based on the philosophies of the societies they serve,” (p. 9) and may therefore not be applicable outside these systems.

- **Education Officers**

   This is a group of technical education professionals who are Ministry of Education (Zimbabwe) officials in charge of supervising and enforcing the national technical education policies. Education officers for technical subjects are certified technical subject teachers appointed to manage the technical education programs in each educational region. Although education officers are certified to teach in either one or two technical subjects, they enforce the standards in all the technical subjects offered in their region. Currently, there is one education officer for technical subjects (building studies, woodwork, metalwork and technical graphics), and one for home economics subjects (fashion and fabrics, and food and nutrition) per region.
Focus in this study is operationally defined as the degree of emphasis given to the technical education program purposes and general education program purposes. The "general education focus" places emphasis on teaching about the industry—the materials and processes used in local industries. The general focus provides pre-vocational awareness to the students. While hands-on activities may be part of the training, the students are not expected to be proficient in technical skills.

The "technical education focus" is job oriented and places emphasis on hands-on activities and proficiency in technical skills. In this focus, the level of craftsmanship carries more weight.

The focus scores were computed by assigning the following values for each of the two major groups of program purpose statements: For technical program purposes, "strongly emphasized = 5," "emphasized = 4," "moderately emphasized = 3," "slightly/somewhat emphasized = 2," and "not emphasized = 1." For the general education program purpose statements "strongly emphasized = 1," "emphasized = 2," "moderately emphasized = 3," "slightly/somewhat emphasized = 4," and "not emphasized = 5." Therefore, possible scores range from a minimum value of 20 to a maximum value of 100; and scores greater than 60 indicate an overall emphasis on the technical education purposes while a score of less than 60 indicate an overall emphasis on the general education program purposes. A score of exactly 60 would be indicative of an equal focus on the general and technical education program purposes.
• **Industrial Arts Education**

A type of vocational education program that focuses on orientation and exploration of industrial activities, rather than specific job training. It attempts to provide a basic understanding of the functions, technology and occupational opportunities in industry. Industrial arts allows students to begin developing skills that will be needed in further vocational training. Areas of work include drafting, woodworking, metalwork and power mechanics.

• **Pre-Vocational Education**

A term that specifically refers to vocational education provided in schools as a preparation for further training. In essence, all school learning could be regarded as pre-vocational if it eventually leads to further training in specific vocations or occupations.

• **Teacher Educators**

These are technical teacher educators or college lecturers at three technical teacher colleges in Zimbabwe. They are technical education processonals responsible for teaching student teachers in the following secondary school technical subject(s): Building Studies, Fashion and Fabrics, Food and Nutrition, Metalwork, Technical Graphics, and Woodwork.

• **Technical Education**

The UNESCO handbook defines technical education as “education designed at upper levels to prepare middle level personnel (technicians, middle management) and at the university level to prepare engineers and technologists for higher management positions” (p. 23). The purpose of vocational education programs that are part of general education
is not to prepare for the "middle level personnel." Therefore, technical education is not usually a secondary school program. It is a type of vocational education program, usually at post secondary school level. It aims at preparing skilled personnel for technically oriented professionals.

Before independence in Zimbabwe, technical education referred to craft-based secondary schools programs that provided specific job or trade training. The students from such programs were destined for industry. On the other hand, it currently refers to programs that provide students with insights into processes, tools and materials used in industry-industrial arts. To avoid confusion in this study, the craft-based 'technical education' in Zimbabwe is called "trade and industrial" education while the current technical education program, is similar to "industrial arts." The common six technical subjects in Zimbabwe's secondary schools are: Building Studies, Fashion and Fabrics, Food and Nutrition, Metalwork, Technical Graphics, and Woodwork.

Technical Education Professionals

Technical education professionals include those under the Ministry of Education in Zimbabwe who are responsible for implementing the secondary school technical education program. Included are secondary school technical teachers for six technical subjects (Building Studies, Fashion & Fabrics, Food and Nutrition, Metalwork, Technical Graphics, and Woodwork). Also included are technical teacher educators and education officers for technical subjects at the secondary school level. The teacher educators, or college lecturers are responsible for teaching student teachers in any of the six technical subjects.
• Technical Teachers

This is a group of technical education professionals in Zimbabwe, certified to teach, who are currently teaching or have taught (in the last six years) at the Ordinary level any of the following six technical subjects: Building Studies, Fashion and Fabrics, Food and Nutrition, Metalwork, Technical Graphics, and Woodwork.

• Trade and Industrial Education (T&I)

This is a broad area of crafts and industrial skills encompassed in industrial education. Trade and Industrial courses aim at preparing persons for initial employment, upgrading existing skills, or retraining in a new or related occupation.

• Vocational Education

This term has no universal definition (Kerre, 1991; Pautler, 1990). In this study, it refers to “organized educational programs offering a sequence of courses which are directly related to the preparation of individuals in paid or unpaid employment in current or emerging occupations requiring other than a baccalaureate or advanced degree” (National Center for Educational Statistics, 1995, p.12). Therefore, programs like industrial arts, trade and industrial, and technical education are types of vocational education programs, if they prepare individuals for occupations below the baccalaureate degree level (Calhoun & Finch, 1982).
CHAPTER 2

REVIEW OF LITERATURE

Over the years, education, particularly vocational education has been seen as a tool for servicing the developmental needs of society (Mandebvu, 1989). Education philosophers who believe this 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. While many countries have introduced vocational education as part of the formal school system, the most debated issue particularly at the secondary school level, has been the purpose of vocational education (Calhoun & Finch, 1982; Psacharopolous, 1988; Strong, 1990).

Vocational education programs serve numerous purposes, ranging from narrow skill training, aimed at providing individuals with occupational skills for employment in a specific job or cluster of jobs to enhancing general education (Bottoms, 1989; Little, 1992; Miller, 1985). Of late, formal vocational education programs at the secondary school level, have shifted in focus/purpose from the traditional skill-focused programs to programs focusing on general orientation and exploration of industrial activities (Bell & Ereckson, 1991; Wright, 1990). The shift in program focus has left many vocational educators uncertain of their roles (Strong, 1990). According to Boyle (1981), having program implementors who are unsure of their role becomes detrimental to the success and development of an educational program. Therefore, it is important to review some of the common vocational education programs, to help reduce the confusion associated with the numerous vocational education programs.
The following sections of this chapter review the concept of vocational education, the purposes of vocational education, forms of vocational education programs, curriculum reforms in vocational education, and the perceptions toward curriculum changes in vocational education. It is hoped the review will provide the broad picture of vocational education and how this relates to three vocational education programs of interest: trade and industrial education, industrial arts education, and technical education.

**The Concept of Vocational Education**

Vocational education is a concept universally accepted, widely used in educational literature and practiced by most nations (Kerre, 1991; Mandebvu 1989; Strong, 1990). However, according to Kerre (1991), the concept of vocational education has no universal definition. Vocational education is often associated with “narrow training for marginal students, and a preparation for manual, low status work or, at best work in the blue-collar trades” (Aring, 1993, p. 397). But, this association is not always true considering some of the vocational education programs available for the college-bound students and some of the well paying jobs for vocationally educated workers. However, a more accepted view of vocational education is that of education designed to prepare persons for employment (Bottoms, 1989; Strong, 1990; Thompson, 1973). Such a definition however, associates vocational education with a variety of educational programs since there are numerous employment opportunities, occupations or careers. This can therefore be misleading when referring to specific vocational education programs.

As observed by Kerre (1991), several authors have expressed frustrations when faced with defining vocational education, Thompson (1973) pointed out, “This generic
term has been used historically with a variety of meanings. In some instances, it refers to narrow skill training; in others it relates to attitudes and values” (p. 19). Attesting to the confusion in defining vocational education, Swanson (1982, cited in Kerre, 1991) observed: “It seems incredulous that the search for a definition of vocational education is still underway and that there is such diversity of perception about what it is or should be (p. 19). To date, the identity crisis of vocational education remains unsolved and the term continues to grow to mean many things to many people (Pautler, 1990).

Even more recently, a search of the ERIC database by Ries (1997) turned up a few state surveys from the late 1980s that continued to show ambivalence toward vocational education. There is so much ambiguity and confusion in defining vocational education and the lack of clarity in what vocational education is has been likened to an English teacher who says “he teaches academic education” (Pautler, 1990). A brief look at common definitions of vocational education will highlight the identity crisis facing the concept.

Vocational education is defined in the UNESCO handbook (1984, cited in Kerre, 1991) as “education designed to prepare skilled personnel at lower levels of qualifications for one or a group of occupations, trades or jobs” (p. 23). The primary concern for vocational education here is providing job skills or preparation for trades. The programs are therefore a means to providing individuals with job-entry skills.

On the other hand, Bacchus (1988, cited in Mandebvu, 1989) defines vocational education as “efforts by schools to include in their curriculum, those practical subjects which are likely to generate among the students, some basic knowledge, skills, and
dispositions that might prepare them to think of becoming skilled workers or to enter into manual occupations” (p.31). Unlike the UNESCO definition, this definition sees vocational education more as an attempt to build a positive attitude toward vocational occupations, or as some kind of pre-employment education for orienting rather than preparing students for direct employment (Lauglo and Lillis, 1988).

In United States, according to Aring (1993) the term vocational education is a dirty word, and many of the middle class parents insist that vocational education is definitely “not for my kid.” The term vocational education, he adds, has come to be identified, especially in urban areas with “inequalities of race, gender, and language, as large concentrations of minorities, especially African-Americans and Hispanics, take part in vocational programs”. Other authors add solutions to the identity crisis by making a distinction between vocational education and vocational training. According to Randal, Mothusi and Munthali, (1985), “vocational education is directed towards the full development of the potential of the learner while vocational training prepares people for employment in a specific occupation” (p. 32). Several authors agree that vocational training may appropriately be carried on in a setting other than a school (Kerre, 1991; Randal, Mothusi, & Munthali, 1985; Wright, 1990). However, from this definition, the ‘full development of the learner’s potential ’ may lend itself to different interpretations, thereby confusing the concept of vocational education.

The Perkins Vocational and Applied Technology Education Act (1990) provides a more inclusive definition by describing vocational education as, “organized educational programs offering a sequence of courses which are directly related to the preparation of
individuals in paid or unpaid employment in current or emerging occupations requiring other than a baccalaureate or advanced degree" (National Center for Educational Statistics, 1995, p.12). This definition recognizes the purpose, involves various types of outcomes, includes pre-employment, and adds in-service programs. The definition further suggests that vocational education is part of the total education program. This definition tends to agree with Roberts (1971) acknowledgment of vocational education's contribution to the development of good citizens as well as proficient workers.

In going through the above definitions one gets the impression that vocational education is a curriculum innovation that occurs strictly within schools (Mandebvu, 1989). However, according to Marklund (1988) vocational education can be applied to measures taken outside school. Such measures would include the cooperation between the schools and the world of work. The measures would be aimed at preparing individuals for a future occupation.

What emerges from the above definitions is that vocational education is the diversification of education by the inclusion of practical subjects into an essentially 'academic' curriculum (Mandebvu, 1989). The purpose being to orient learners towards the world of work by providing pre-employment skills, preparing individuals for direct employment, or giving individuals skills usable in future employment (in-service programs). Overall, the Vocational Education Perkins Act (1990) definition seems broad enough to describe several possible vocational education programs and is, therefore, adopted as a working definition of vocational education in this study.

By accepting the Perkins Act (1990) definition, vocational education programs like trade and industrial education, industrial arts education and technical education become
specialized programs of vocational education as suggested by Calhoun and Finch (1982). However, it must be noted that the nature and names of vocational education programs will vary from one country to another, and that programs are best described by their purpose. With the existence of several definitions of vocational education, it is necessary to discuss some of the common purposes of vocational education programs.

**Purposes of Vocational Education**

From the numerous definitions of vocational education, it is logical to assume that there would be different purposes for vocational education. In fact, even the purposes of vocational education have some problems. According to Calhoun and Finch (1982, p. 60) "there is disagreement as to what the [purpose] of vocational education should be.” There are several reasons that have been put forward as purposes of vocational education.

One purpose for introducing students to vocational education is to influence them away from white collar jobs to blue collar jobs, according to Bachuus (1988, cited in Mandebvu, 1989). The argument, according to Mandebvu (1989), is that academic education encourages people to get white-collar jobs which do not lead to productive lives. Therefore, it is hoped that by exposing students early to vocational education, this may dampen their quest for academic education and, at the same time, encourage them to develop an interest in trades, crafts, or manual work (Wright, 1990). However, there has been no empirical evidence to support this contention. The purpose of vocational education is seen as developing the “right attitude” toward manual occupations and helping the learner to make informed occupational choices later in life.

Another purpose of introducing vocational education courses in the curricula, is to improve students comprehension. According to Bell and Ereksen (1990), hands on
experiences increase knowledge retention by as much as a factor of two or more. Since vocational education is about applying knowledge, this is likely to increase retention of the learned concept. While most people perceive vocational courses as just hands on, vocational educators argue that vocational education goes beyond hands-on experiences. It is education for the hands and mind (Bell & Erekson, 1990).

The provision of job-entry skills or preparation of students for entry-level employment is another purpose of vocational education. Surprisingly, this purpose is the most frequent answer to the question, “What is the purpose of vocational education?” (Bottoms, 1989). The response reinforces the traditional relationship between vocational education and employment. At the same time, it serves to highlight the misconceptions surrounding what many people have come to understand as the purpose of vocational education (Ries, 1997).

Job-entry skills are at two levels: for specific jobs and for a cluster of jobs. Entry-level skills in each case may not be the same. It would be necessary to further clarify this purpose to reduce any confusion associated with the different job-entry skills. The provision of job-entry skills presupposes that one has already chosen a career or occupation and that vocational education prepares the individual to enter the selected or desired vocation. The purpose seems appropriate in programs at the post secondary school level. What looks omitted from this definition, however, are individuals who are already employed and require upgrading of their skills. The main idea for providing job-entry skills is to bridge the gap between education and the world of work (Nherera, 1994).

In a study conducted by Mandebvu (1996) some employers felt the schools should have the responsibility to equip pupils with technical skills. On the contrary, several
studies have concluded that employers' requirements in school-leavers appear to be overwhelmingly on attitudinal attributes rather than on specific vocational skills studies (Mandebvu, 1996; Thomas, 1996). In support, Oxenham (1986) observed that employers consider the ability to communicate, both orally and in writing, together with good motivation, potential leadership qualities, breadth of outlook and a positive attitude to change. Similar views on preparation of job-entry skills as a purpose of vocational education are shared by Kerre (1991) and Roberts (1971).

In summary, there are diverse purposes of vocational education, ranging from provision of job-entry skills for employment in a specific job or cluster of jobs, to enhancing general education (Bottoms, 1989; Little, 1992; Miller, 1985). Generally speaking, these purposes are too narrowly defined. This often causes problems. Also, it can be noted that vocational education programs have expanded in purpose to include the vocational guidance and counseling that precede or parallel the preparation for employment or re-employment (Calhoun & Finch, 1982). As an additional task, Bottoms (1989) suggests that vocational education should clarify the relationship between vocational and academic education.

Forms of Vocational Education Programs

What can be noted from the purposes is that there are numerous possible vocational education programs. Vocational education programs are often identified either by school level or by the training for the type of occupation (Kerre, 1991). By school level, there are programs at middle, junior and high school. By occupational training, there are programs for artisans, technicians, or journeymen.
Most vocational education programs have a theoretical and practical curriculum component and the proportion of the two components differentiates the various programs. For instance, at the elementary and lower secondary school levels, vocational education programs are of a general or exploratory nature (Calhoun & Finch, 1982). The programs focus more on general awareness of materials and processes. Essentially, they focus on exposure to the industry and there is very little technical skill development. As one progresses to the high school, the emphasis is more on development of technical skill than on theoretical concepts see Figure 3, (adapted from Anderson & Ramp, 1993) for the level of formal vocational education programs in the United States.

![Diagram](image)

**Figure 3. Levels of Vocational Education in the Formal School System**

As can be noted in Figure 3, the amount of technical skill training required at each school level increases with the school levels. Therefore, in general, it can be said that, as the requirement for proficiency in technical skills increases, less emphasis is put on theoretical concepts. However, some secondary school programs put almost the same emphasis on the two components.
Differences in vocational education programs defined by type of occupation can also be seen in Figure 4, the time spent on the theoretical and practical curriculum components. For instance, between the artisan and craft levels, a great amount of time is spent on practical skills (90%) compared to theoretical concepts (70%) according to Kerre (1991). In support, Calhoun and Finch (1982) observe that at the technician and technologist levels, the theoretical components become dominant as the learner is introduced to principle methods and the technology that is required in designing, developing, and improving products (see Figure 4, from Kerre, 1991).

![Vocational Training Continuum](image)

**Figure 4. Vocational Training Continuum**

What emerges from the various forms of vocational education programs is that the programs are differentiated by the amount of time spent on the theoretical and practical curriculum components. Vocational education programs will thus emphasize each component differently depending on the intended outcome. The following sections...
describe characteristics of vocational education programs at the lower and higher school levels.

**Vocational Education Programs at Lower School Levels**

At the lower school levels, most programs provide general exploratory courses (Calhoun & Finch, 1982). The knowledge gained by students is expected to help them make educated decisions when selecting occupations or as consumers in society. Nevertheless, the provision of vocational education at this level has generated a lot of controversy. Some educators oppose channeling students too early into occupations, or the giving of a child the academic education when one does not have the inclination. The educators do not see "the need of turning a lawyer into a carpenter" (Roberts, 1971, p. 10). More than likely, because of this controversy the programs at the lower school levels will have a general education focus to accommodate all students: the college-bound students and those who will not make it to college. Although educators have argued over what should be taught and when it should be taught, there seems to be consensus in criticizing labor-specific vocational education in elementary and junior high schools. Evans and Herr (1978) argue:

Vocational education is understood by most educators to be highly specialized and hence not an appropriate part of general education programs of the elementary school and junior high school. Specialized vocational education is best offered close to the time a person will use the education in employment. It is almost impossible for a person to secure meaningful employment before age sixteen, two years after the typical student leaves the eighth grade (p. 211).

Besides, it is not feasible to offer vocational training programs at this level, since the training equipment must resemble what the student will use after training. In this technological world, according to Mandebvu (1996), any specific vocational skills taught...
in the school are likely to be obsolete by the time the learner leaves school. Therefore, one can expect to find pre-vocational or career-awareness education programs and general labor market preparation courses at the lower school levels (Anderson & Ramp, 1983).

At the junior high school, the trend is to redirect vocational education to "the development of an understanding of the totality of industry, and a de-emphasis on skill development with the hand and machine tools commonly used in industrial arts" (Wilber & Pendered, 1973, p. 36). Generally, at this level, vocational education programs often take the form of one single course with components from most trade areas built in (McClurkin, 1996). While the strategies for introducing vocational education programs vary from place to place, it is not uncommon to find programs broken into distinctive subject areas at the junior high school level, as is the case in Zimbabwe. However, the arrangement of vocational education programs into single subjects is probably not as important as the content taught to the students at each grade level.

**Vocational Education Programs in High Schools**

According to Little (1986) and Strong (1990) the vocational education programs at the high school level have generated much debate. The debates have resulted in the objectives of the programs at this level to be more varied than at the post secondary level (National Center for Educational Statistics, 1995). The debates have centered around the content of vocational education—how much of the technical or practical skills in relation to the theoretical components of the curriculum do the students need? The answer to this question lies in the type of a vocational education program.
Essentially, vocational education programs at the secondary school level can be classified into three types: (1) consumer and homemaking education, (2) general labor market preparation, and (3) specific labor market preparation (Strong, 1990). The consumer and home making programs used to prepare individuals mostly for chores within the home. These days the knowledge from home making programs can be applied to settings outside the home. The general labor market preparation provides individuals with general skills targeted at no particular job. In contrast, the specific labor market preparation provides those students wishing to enter a particular occupational field the required technical skills. Therefore, it is essential to understand the focus or purpose of each vocational education program.

Among the common high school vocational education programs are trade and industrial, industrial arts, and in some cases technical education. The descriptions and objectives of the programs are presented in the following sections.

- Trade and Industrial Education

Trade and industrial education (commonly known as T&I) is offered at high school and post secondary school levels. According to Foster (1994), T&I focuses on skill development in a particular trade and consists of a study of separate and discrete crafts which grow out of trade skills and are applicable to distinct material. Usually, the school subjects are organized and equipped around occupational areas such as woodwork, metalwork, building (construction) and drawing (drafting). The curriculum in T&I is aimed at “preparing persons for initial employment, at upgrading their existing skills, and at retraining them in a new or related occupation” (Calhoun & Finch, 1982, p. 207).
Over the years, the workforce has been expected to be “multi-skilled and capable of learning new skills more rapidly” (Brand, 1992 p. 3). This in turn has seen the growth and expansion of new topics of study which has rendered the traditional trade and industrial curriculum inadequate to meet the demands of the time (Little, 1992). As McClurkin (1996) observes:

The trend toward technology in industry has developed from the artisan-craftsman stage of industry, with its emphasis upon manual skill, to the factory system, with its giant machines operated and controlled by man, and finally to industries with processes and machines so automated and programmed as to change drastically the nature of industrial work for man. The earlier emphasis on manual labor has given ground to more sophisticated skills and information needed in today’s technical industries (p. 60).

Subsequently, changes have been made in the focus vocational education programs from the study of separate and discrete crafts which grew out of trade skills to vocational education programs organized around clusters. Essentially, from T&I to industrial arts or technology education.

- Industrial Arts

It has been observed that little opportunity outside the school is afforded young people today to learn about industry and its processes or to explore its world of work (McClurkin, 1996). Industrial arts is a program designed to provide this opportunity through a study of the industry, its people, tools, materials, processes and products. In industrial arts programs, students “use technology effectively for their personal benefit in a variety of life roles (family, occupational, recreational) and use their skills and knowledge about industrial technology to improve the world” (Calhoun & Finch, 1982, p. 42). The program is not intended to prepare students for gainful employment in any specific field.
but rather contributes to their understanding of the world in which they live (Wright, 1990). These programs help students fulfill their responsibilities to society through citizen, career, and consumer roles. Some educators further describe industrial arts as liberal education needed by all citizens in an industrialized democracy, and is treated as both general education and vocational education (Calhoun & Finch, 1982; Bell & Erekson, 1991).

Industrial arts programs have often been confused with trade and industrial. The main difference between the two programs is that Industrial Arts programs focus on orientation and exploration rather than specific job-skill training. Industrial arts education is seen by many educators as an activity program, “where young people work with materials and manipulate tools and machines, but they do not place as high a priority on the development of skills (Silvius & Curry, 1971, p. 15).” Among the commonly accepted objectives of industrial arts in the secondary schools are:

1. To develop in each student an insight and understanding of industry and its place in our society; 2) To discover and develop students talents in industrial-technical fields; 3) To develop problem solving abilities related to the materials, processes, and products of industry; and 4) To develop in each student skill in the safe use of tools and machines (p. 60).

Industrial arts programs provide a basic understanding of the functions, technology, and occupational opportunities in industry, and allow students to begin developing skills that will be needed in further vocational training (Bottoms, 1989). In one of the most comprehensive arguments for industrial arts education in secondary school, Robert Seckendorf (cited in Silvius & Curry, 1971), proposed one objective or goal for industrial arts:
To provide students with an understanding of the industry and an awareness of its changing technology, the degree of skill has been with us as an objective for as long as any of us can remember. It is a direct out-growth of the use of tools and materials. I believe that there is a difference between understanding the necessity for skillful use of tools and machines and the development of skill in the use of tools and machines. But, on the other hand, if the student is subjected to constant practice and the development of skills in order to become proficient in the use of tools, in my judgement, this no longer represents an industrial arts concept. No longer can we teach woodworking, metalworking or even plastics (p. 39).

**Technical Education**

Technical education is another common vocational education program mainly at the post-secondary school level. It is not uncommon to find technical education programs in secondary schools but mainly in specialized high school. Also common are industrial arts programs in comprehensive high schools classified as technical education. With all these possible programs it becomes unclear what technical education is. According to Calhoun and Finch (1982), the definition of technical education is somewhat unclear. Nevertheless, according to Dobrovolny (1969) the origin of technical education can be traced back to the time when there was a need to train technicians who would work on jobs that required more limited competencies than those of a professional engineer but more than those of needed by skilled mechanics. He observes that:

> "What technical education is, must be predicated on what a technician is. A technician is a person whose education and experience qualify him to work in a liaison capacity between the professional person and the craftsman . . . he is frequently in direct support of the professional employee assisting in the planning, designing, and implementation phase of a particular project" (p. 2).

In terms of skill level, a technician is above the craft level but below the technologist level (refer to Figure 4). As observed by Calhoun and Finch (1982):

> "The preparation for a technical occupation requires an understanding of, and ability to apply, those levels of mathematics and science appropriate to the"
occupation. And in those occupations that can be properly defined as technical, the mathematics and science required is more advanced than that required for a middle-type craft or skilled-trades occupation" (p. 207).

From the above definition, it becomes logical to expect technical education programs at post-secondary schools or in highly specialized secondary schools. Therefore classifying vocational education programs in comprehensive high schools, technical education becomes misleading. In any case when industrial arts courses are used to serve vocational needs without modifying considerably the course objectives and content, the program is neither good industrial arts nor good vocational-industrial education, and vice versa" (McClurkin, 1996, p. 61).

Vocational Education and Curriculum Reforms

In the vocationalism debate, there is a school of thought that says schools should be left to provide general education, and that vocational training should be left to after-school training programs (Mandebvu, 1996). This debate has led to changes in the vocational education programs at the high school, from trade and industrial to industrial arts. Today, one of the challenges that schools face is in “technology education that is making a strong bid to replace the skill-focused industrial arts classes in the curriculum” (p. 25). Echoing the same sentiments, Johnson (1989, as cited in Rogers, 1992) observed that “traditional industrial arts programs, which focused primarily on developing manipulative skills and understanding about industrial materials and processes, are giving way to technology education classes which emphasize a broad approach to technology” (p. 46). The biggest problem with the changes to the vocational education programs has been the educators—accepting or understanding the changes in the program focus. There is evidence in the literature that the professionals are confused and in disagreement over
the curriculum changes (Rogers, 1995). Not only that, there has been an on-going debate on whether technology is a remake of industrial arts or is it a new curriculum altogether?

Educators have put forward several views, both rejecting or supporting claims that technology education is a remake of industrial arts. Foster (1994) maintains through his “alias” theory that technology education is simply another name for industrial education. In agreement, DeVore and Lauda (1976) suggest that the industrial arts profession changed its name to technology education to reflect cultural reality.

On the contrary, Hill, Wicklein and Dougherty (1996) view technology education as something totally new and not a remake of industrial arts . . . “technology education must be thought of as something new . . . it has no place in an old industrial arts, or shop paradigm . . . to say that technology exists in the old setting is totally inaccurate” (p. 3). In fact, those professionals who see differences between the two programs are making every effort to move away from aligning technology with the “trade” or “technical” subjects (Foster, 1995). Wright (1990) argues that the new program requires a different type of teacher and that the skilled artisan teacher who once served as industrial arts instructor is not fully or properly equipped for the new technology education curricula thrust. Furthermore, technology education claims a wider scope of content and more explicit reflection on solving problems than industrial education (Scarborough, 1989).

While subtle distinctions are made between technology education and industrial arts, the professionals seem divided. This confusion or lack of consensus on whether technology education is a remake of industrial arts education raises doubt as to what exactly is being taught in high school; is it industrial arts or technology education, or is it
a situation that Foster (1989) calls "new wine in old bottles" (p. 40). Such misconceptions about technology education cannot be ignored because they create differences in curriculum focus and implementation (Dyrenfurth, 1987).

To compound the lack of clarity between these two programs, some public-school industrial arts teachers feel that "technology" has been handed down to them without an instruction booklet, except for ivory-tower curriculum documentation (Foster, 1994). This feeling by teachers further clouds the issue of what public school teachers are supposed to teach (Foster, 1995). The literature on policy implementation argues that the success or failure of education innovations depends largely on the implementation process rather than on the type of innovation (technology) adopted (Nhundu, 1997). The confusion is likely to impact the implementation process of the new program.

Perceptions and Curriculum Changes in Vocational Education

In the past, technology education (formerly industrial arts) has served a diverse student population. In some schools, it has been a required subject for all students and it has served a full range of ability levels (Bell & Erekson, 1991). In other instances, technology education has been treated as an elective subject, and has tended to serve students with lower intellectual ability. This has created some problems for the policy makers, whether to make it part of the general track and cater for all students or a pre-vocational course that is not appropriate for college-bound students. More often than not, the ultimate decisions that have been made are more political than pedagogical (Mandebvu, 1989), and this has created implementation problems.
Two strategies for implementing technology education programs in high schools have been adopted. One is where technology education courses are made a requirement for all students, while in the other approach, technology education remains an elective. This has been a source of perception problems in implementing technology education—do the educators understand the differences in focus between subjects sharing the same name but in two different programs? If they do, what aspects of the vocational education program is emphasized?

In any given program, there is the official curriculum and the taught curriculum. The official curriculum is what reformers have repeatedly tried to change, according to Cuban (1993). But, he adds, teachers working alone in their classrooms choose what to teach and how to present it. Their choices derive from their knowledge of the subjects they teach, from their experiences in teaching the content, from their affection or distaste of the topics, and from the attitude of the students they face each day. Therefore, finding out what the professionals perceive (the taught curriculum) of their program gives an indication of how well they accept or understand the official curriculum. Since the perceptions and attitudes have been assumed to guide people to adopt different vocational and life roles (Stakweather, 1990), studies have been conducted to establish what the professionals perceive of their programs.

In a study on the purposes of industrial arts education as perceived by high school teachers and headmasters, Schmitt and Pelley (as cited in Silvius and Curry, 1971) established differences between the teachers and headmasters. One conclusion from their study was that the industrial arts teachers and their headmasters do not share a common
perception toward the purpose of the same program. On the contrary, in a study by Strong (1990) a group of state directors was asked to rank seven purposes of vocational education at the secondary school level. The leaders were found to be in total agreement about the role of the vocational education program.

Scarborough (1989 as cited in Rogers, 1992) conducted another study to establish what teachers perceived of their program, whether it should be more traditional or whether they felt technology education was better. The teachers “stated that the courses should be more traditional in content, e.g., teach students how to safely use basic tools, machines, etc,” (p. 47). These responses were from teachers of technology education programs, not industrial arts teachers (Rogers, 1992). However, several studies have not established acceptance by teachers of technology education from the traditional trade and industrial arts education (Wright, 1990).

In another study to establish the content of the technology education program at middle and junior high school level, Scarborough (1989) found that the teachers rated highest the following purpose of the program “... to teach students how to safely use basic tools, machines, etc (p. 7).” When high school teachers were asked to indicate the focus of their technology education curriculum, “20% indicated technological awareness, 13% learning reinforcement, 14% technological adaptability, 15% career counseling, and 20% vocational education” (p. 7). This study shows lack of consensus among the teachers on the program focus.

What seems to emerge from the reviewed studies are different perceptions or misconceptions on curriculum focus of vocational education programs. Applying the
situations to Zimbabwe, many similarities can be drawn. In Zimbabwe, the old technical education program was craft-based (trade and industrial arts education) while the new program is more towards industrial arts or technology education. This raises a question on whether or not the technical education professionals have common perceptions of the focus of their ‘new’ program. On the other hand, the reviewed literature is inconclusive on whether the vocational education professionals have accepted or adopted changes to the new industrial arts program in their teaching? This study is therefore being conducted to seek answers to these questions.
CHAPTER 3

METHODOLOGY

Research Design

This study employed descriptive research methods to 1) determine the extent to which the technical education professionals in Zimbabwe currently emphasize the selected purposes of technical education program at Ordinary level, and 2) to identify the extent to which the technical education professionals perceived the stated purposes of technical education to be ideal for the secondary school technical education program in Zimbabwe.

More specifically, this study was intended to:

1. Describe the three different groups of technical education professionals in Zimbabwe (defined as secondary school technical teachers, technical teacher educators, and education officers for technical subjects, in the Ministry of Education) in terms of the following selected demographics:
   a. job classification
   b. gender
   c. age level
   d. educational qualifications
   e. institution where professional qualification was obtained
   f. major technical subject(s) studied at tertiary institution
   g. main technical subject(s) taught in school
   h. the other school level at which the professionals teach or have taught technical subject(s)
i. years of teaching experience

j. For secondary school teachers, in addition to the above demographics identify the school’s responsible authority and geographic location of the secondary schools, and

k. For education officers, describe their years of working experience as education officers.

2. Describe the degree of emphasis that is being placed on each of a series of stated technical educational program purposes at the Ordinary level as it CURRENTLY operates, as perceived by each of the three groups of technical education professionals.

3. Describe the degree of emphasis that should be placed on each of a series of stated technical educational program purposes at the Ordinary level as it should IDEALLY operate, as perceived by each of the three groups of technical education professionals.

4. Determine the focus of the program as it CURRENTLY operates at the Ordinary level for each group of technical education professionals.

5. Determine the focus of the program as it should IDEALLY operate at the Ordinary level for each group of technical education professionals.

6. Compare the CURRENT focus scores of the three different groups of technical education professionals.

7. Compare the IDEAL focus scores of the three groups of technical education professionals.
8. Compare the CURRENT focus score with the IDEAL focus score for each group of technical education professionals.

9. Determine if a relationship exists between the CURRENT and IDEAL focus scores and the following demographic characteristics:
   a. gender
   b. age level
   c. educational qualifications, as measured by highest professional education completed
   d. institution where professional qualification was obtained as measured by technical college, teacher training college and university
   e. major technical subject(s) studied at tertiary institution
   f. main technical subject(s) taught in school
   g. the other school level at which the professionals teach or taught the technical subject(s), as measured by Zimbabwe Junior Certificate level, Ordinary level, teachers college, technical college and university
   h. years of teaching experience
   i. type of secondary school as measured by government or private, and
   j. geographic location of school as measured by urban and suburban

10. Determine if a model exists that explains a significant portion of the variance in each of the CURRENT and IDEAL focus scores regarding the purposes of technical education programs at the Ordinary level in Zimbabwe, from the following professional and demographic variables:
a. job classification
b. educational level completed
c. years of teaching experience
d. main technical subject(s) taught in school
e. the other school level at which the professionals teach or have taught the technical subject(s), and
f. institution where professional qualification was obtained.

Population and Sample

The target population for this study was defined as technical education professionals in Zimbabwe. This population was stratified into three sub-populations, and a portion of the research sample was drawn from each of these three sub-groups. These three sub-populations included secondary school technical subject teachers, technical teacher educators employed in the technical teacher’s colleges, and education officers (technical subjects) of the Ministry of Education.

The education officers were included in this study because of their key role in implementing the technical education programs in secondary schools. They control the standards and supervise the technical teachers. Therefore, the perceptions of education officers provide information on what the policy makers expect of the technical subject teachers. Because of this role, education officers were considered key decision makers with significant influence on the success or failure of the Ordinary level technical education program. Similarly, the perceptions held by technical teacher educators or college lecturers regarding the technical education program are important in establishing
the kind of technical teacher being produced to teach Ordinary level technical subjects. Therefore, individuals in these positions were viewed as playing important roles in the development of the Ordinary level technical education programs in Zimbabwe and as key sources of information for this investigation.

Of these three groups, two were studied using a census of the defined sub-population frame, and the third (secondary school technical subject teachers) were sampled by selecting one geographic region of the country from which a 100% sample was drawn. Specific information regarding the selection of subjects included in the sample is presented in the following sections.

Technical Subject Teachers

The first step in selecting the sample of secondary school technical subject teachers to be participants in the study was to select the region from which the sample was to be drawn. The best procedure for selecting a sample of technical subject teachers for the study would be to draw a sample at random from across the country. However, this procedure was not feasible due to several factors. These factors included: a complete frame of all teachers was not available, reliable mail service does not exist in some parts of the country, and some regions/parts of the country are inaccessible. For these reasons, the researcher recognized the need to choose a region which included all technical subjects, was accessible, and had a reliable mail delivery service.

Zimbabwe is made up of nine educational regions. Only one of these regions met all the desired characteristics. This region is Harare, and it was selected to draw the sample of technical subjects teachers. Harare was also the most logical region for
inclusion in the study because it provided the greatest access to the other sub-populations included in the study. All secondary school technical subject teachers in Harare region were surveyed for this study.

Information regarding the exact number of technical teachers in Harare region was not available due to the fact that many of the teachers are locally hired and there is no national or regional office that compiles a reliable list of employed teachers. However, the best estimate that was available regarding the number of technical teachers in the region was approximately 400. Even if this number is close in approximation, the response rate of technical teachers well exceeds 90%.

Teacher Educators

The sub-population of teacher educators was defined as all of the college lecturers who taught “trades” or skills courses (specifically Building, Fashion and Fabrics, Food and Nutrition, Technical Graphics, Metalwork, and Woodwork) at three of the country’s technical teacher colleges. The sample was 100% of the technical teacher educators at the Belvedere, Chinhoyi and Gweru teacher’s colleges. While not all of the technical areas are represented at each of the three teacher’s colleges, all of the areas were represented at one or more of the teacher’s colleges. Similar to the situation with the technical teachers at the Ordinary level, the exact number of technical teacher educators was not available to the researcher because of the lack of a reliable list of employed personnel at the Ministry of Higher Education. However, the estimate of the number of faculty in these three institutions was 40 technical teacher educators. The frame for the teacher educators
included 39 of the 40 teacher educators that responded. This yields a response rate in excess of 90%, if the estimated number of faculty was even somewhat accurate.

**Education Officers**

Each of the nine educational regions in Zimbabwe is supposed to have at least one education officer responsible for technical subjects (building studies, metalwork, woodwork and technical graphics), and one for home economics (food and nutrition, and fashion and fabrics). Therefore, the frame of the Education Officers sub-population included 16 of the 18 education officers who responded, putting the response rate for this group at 88.9%.

**Instrumentation**

A researcher designed questionnaire was the primary data collecting instrument chosen for this study. The instrument, entitled “Purposes of Technical Education Survey” (PTES), was developed based on the review of related literature. The objective of the questionnaire was to allow all respondents the opportunity to express their agreement or disagreement to the degree of emphasis being placed on a series of educational purposes for technical education programs at Ordinary level, as the program CURRENTLY operates. In addition, the questionnaire sought to identify which purposes of technical education the professionals perceived as IDEAL for the technical education programs at the Ordinary level in Zimbabwe.

Three separate self-report questionnaires were designed, one for each group of technical education professionals. Each instrument was divided into three identical sections, except for the demographic section. The first section was used to obtain
demographic information about the respondents. According to Fink and Kosecoff (1983), the return rate will be enhanced if respondents are allowed the opportunity to answer the more objective types of questions, e.g. demographic items, prior to answering questions requiring more subjective analysis. Demographic variables potentially influencing perceptions were selected from a study conducted by Schumacher and Kahler (1989). The demographic information required was different for each group of technical education professionals. The information was used to provide descriptive information on each of the three samples and to form the basis for a comparative analysis of the respondent's perceptions.

Sections two and three of the instruments each consisted of 20 statements of purposes of technical education programs at the secondary school level. The twenty statements on purposes of technical education were identified from the Zimbabwe Ordinary level technical subjects syllabi (Zimbabwe Schools Examinations Council, 1997), related literature and similar studies on purposes of industrial arts, trade and industrial education and vocational education programs (Colhoun & Finch, 1982; Silvius & Curry, 1971; Strong, 1990).

To determine the current focus of the technical education program, the secondary school technical subject teachers were asked to rate each of the 20 statements in section 2, according to the degree of emphasis they CURRENTLY place on the stated purposes while teaching technical subjects at Ordinary level. The teachers indicated the degree of emphasis they currently place on the stated purposes using the following scale: “5 = I
strongly emphasize,” “4 = I emphasize,” “3 = I moderately emphasize,” ”2 = I
slightly/somewhat emphasize” and “1 = I do not emphasize.”

Technical teacher educators and education officers rated the stated purposes of
technical education (section 2 of the instrument) according to the degree they perceived
the secondary school technical teachers to be CURRENTLY emphasizing the purposes.
The statements were rated according to the following scale: “5 = Teachers strongly
emphasize,” “4 = Teachers emphasize,” “3 = Teachers moderately emphasize,” “2 =
Teachers slightly/somewhat emphasize,” and “1 = Teachers do not emphasize.”

Section three of the survey instrument sought to determine the ideal focus of
technical education at Ordinary level. The three groups of respondents rated 20 statements
of purposes according to the extent to which they felt the stated purposes were IDEAL
for the technical education program at Ordinary level. Rating of the statements of
purposes was done using the following scale: “5 = To be strongly emphasized,” “4 = To
be emphasized,” “3 = To be moderately emphasized,” “2 = To be slightly/somewhat
emphasized,” and “1 = Not to be emphasized.” The 20 statements in section three, were
the same as in section two, except that they were rearranged to avoid influencing
respondents’ choices. The first ten items in section two were the last ten items in section
three, while the last ten items in section two were the first ten items in section three. For
the specific instructions on each instrument, see appendices A, B, and C.

• Validity

Validity of the instrument was established through a review by panels of experts:

two industrial arts university professors in the School of Vocational Education at
Louisiana State University (LSU), and two lecturers in the Department of Technical Education at the University of Zimbabwe. The two lecturers from the University of Zimbabwe included a specialist from Family and Consumer Science (Home Economics) and another from the construction or trades area.

In addition, a group of 26 secondary school technical subject teachers (Bachelor of Education, Technical students) at the University of Zimbabwe was used to validate the instrument. These technical teachers are qualified and experienced secondary school technical subjects school teachers attending the University of Zimbabwe. Although the University of Zimbabwe was officially closed on June 2, 1998 due to student protests, bachelor of education students were unofficially coming to the university to consult with their research supervisors. The students who came to the University of Zimbabwe, Department of Technical Education on Monday June 29, 1998 were used in pilot testing the instrument. The group consisted 16 males and 10 females from the following subject areas: Building (4), Home Economics, that is fashion and fabrics, and food and nutrition (6), Technical Graphics (6), Metalwork (5), and Woodwork (5).

The technical subjects, and home economics teachers were asked to complete the questionnaire for technical teachers to ensure an accurate interpretation of instructions and the statements of purposes in the instrument. Their responses were analyzed to determine the instrument’s validity. Based on the recommendations from all the experts consulted, appropriate changes were made to the instrument (see Appendices A, B, and C for the revised instruments).
Reliability

Reliability of the 40-item scale was assessed from the data collected in the study using Cronbach’s Alpha internal consistency coefficient. The reliability coefficients of the four sections of the scale were determined to be very high, ranging from $\alpha = .83$ to $\alpha = .86$. Section one of the scale (items 1-10 in part two of the instrument) had the current general education items. Section two (items 11-20 in part two of the instrument) had current technical education items. Section one had a reliability coefficient of $\alpha = .83$ while section two had a reliability of $\alpha = .86$. Sections three and four had ideal technical and general education focus items, respectively. Section three (items 1-10 in part three of the instrument) had ideal technical education items and had a reliability coefficient of $\alpha = .84$. Section four of the scale (items 11-20 in part three of the instrument) had the ideal general items and had a reliability coefficient of $\alpha = .84$.

Data Collection

Data for this study were collected in Zimbabwe between June 29 and July 30, 1998. Permission to survey secondary school technical subject teachers and education officers (Appendix D), was granted by the Ministry of Education & Culture while permission to survey the teacher educators (Appendix E) was obtained from the Ministry of Higher Education.

The questionnaires with cover letters for the technical teachers, and teacher educators were hand delivered to 1) all secondary school technical subjects teachers in the Harare region; and 2) to all technical teacher educators at Belvedere, Chinhoyi and Gweru teacher’s colleges. The questionnaire packets (with a cover letter, questionnaire, and a
stamped return envelope) for the education officers were sent by regular mail to all nine educational regions. The mailed questionnaire was appropriate considering the geographical distances between the education officers.

Data from the education officers were collected by mail as follows: Post cards announcing the forthcoming questionnaire package were mailed five days prior to mailing the complete questionnaire package. Five questionnaires were received within the second week of mailing the questionnaires. Phone reminders were made ten days after mailing the first questionnaire. Six more questionnaires were received bringing the total to eleven. A second set of questionnaires was sent to the two regions that had not responded. This was followed by a second phone reminder which was made when no responses were received seven days after sending the second package. Five additional questionnaires were later received bringing the total number of questionnaires from the education officers to sixteen.
CHAPTER 4

RESULTS

The purpose of this study was to determine the current and ideal focus of the technical education program in secondary schools in Zimbabwe. Data for this study were collected from 452 technical education professionals (397 technical teachers, 39 teacher educators, and 16 education officers) who responded to the survey instrument. The data gathered in this study was analyzed using the Statistical Package for Social Sciences (SPSS).

Another source of data, according to Tashakkori and Teddlie (1998), that is usually ignored is one's personal experiences or knowledge about a culture, group or organization. They acknowledge that “although this knowledge is not systematically measured, it provides an auxiliary source of data that can enrich your collected data” (p. 110). The political situation and environment in Zimbabwe at the time of conducting this study did not lend itself to a full qualitative component of the research. Nevertheless, the researcher was able to informally interact with some of the respondents in the study, when the instruments were hand delivered to the secondary schools and teachers colleges.

In this chapter of the research report, the findings of the study are presented according the research objectives and, where appropriate, responses from the informal interactions with the respondents will be included. The first objective provides the demographic characteristics of the respondents. Objectives two and three, present findings on the current and ideal emphasis being placed or to be placed on the secondary school’s technical education program purposes in Zimbabwe, as perceived by the technical
education professionals. The findings related to the current and ideal focus of the technical education program are presented in objectives four and five. Findings of the comparisons of the current focus score and ideal focus scores, within each group of technical education professionals and between the three groups of professionals are presented in objectives six, seven, and eight. Objective nine presents results of the relationships between the focus scores and some selected demographic characteristics. Lastly, in objective ten the results of the exploratory models that explain a significant portion of the variance in the focus scores are presented.

Objective One

Objective one was to describe the three different groups of technical education professionals in Zimbabwe (defined as secondary school technical teachers, technical teacher educators, and education officers for technical subjects of the Ministry of Education) on selected demographic characteristics. Ten demographic variables were measured. Respondents were asked to indicate their gender, age levels, educational qualifications, institutions where they obtained their professional qualifications, the major technical subject(s) they studied at a tertiary institution, the main technical subject(s) they teach/taught in school, the school level at which the professionals teach or have taught the technical subject(s), and the years of teaching experience. Additional information, such as the geographic location of the schools and the responsible authority for the secondary schools was requested of the technical teachers and, for the education officers, their years of experience working as education officers.
Job Classification and Gender of Respondents

Two hundred and thirty four (51.8%) of the technical education professionals were males and 218 (48.2%) were females. The 397 responding technical teachers were approximately equally divided on gender. In the other two sub-groups of technical education professionals there were more males than females. The frequencies of males and females in each of the categories of technical education professionals are presented in Table 2.

Table 2

<table>
<thead>
<tr>
<th>Gender</th>
<th>Technical Teachers</th>
<th>Teacher Educators</th>
<th>Education Officers</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Males</td>
<td>199</td>
<td>50.1</td>
<td>25</td>
<td>64.1</td>
</tr>
<tr>
<td>Females</td>
<td>198</td>
<td>49.9</td>
<td>14</td>
<td>35.9</td>
</tr>
<tr>
<td>Totals</td>
<td>397</td>
<td>100.0</td>
<td>39</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Age Levels of Respondents

Regarding the age levels of respondents in the study, the majority of responding technical teachers (n = 233, 59.3%) were in the 26 to 35 age category. One technical subject teacher was more than 55 years of age. The majority of each of the other two responding groups (51.3% of college lecturers and 62.5% of education officers) were in the next older age category of 36 to 45. In addition, the teacher educators had 30.8% in the 26 to 35 age group. The only group which had a substantial number of respondents in either of the two older age categories was the education officers with 37.5% in the 46 to 55 age group (see Table 3).
Educational Qualifications of Respondents

In terms of the educational qualifications of the respondents in the study, the largest group of the technical teachers (n = 196, 49.4%) had a Certificate in Education. The Diploma in Education holders were the second largest group (n = 111, 28.0%), and Masters degree holders were the smallest group (n = 2, 0.5%). Thirty one technical teachers (7.8%) had other qualifications.

Table 3

<table>
<thead>
<tr>
<th>Age Levels (in years)</th>
<th>Teachers n</th>
<th>%</th>
<th>Educators n</th>
<th>%</th>
<th>Officers n</th>
<th>%</th>
<th>Totals n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 or less</td>
<td>38</td>
<td>9.7</td>
<td>2</td>
<td>5.1</td>
<td>0</td>
<td>0</td>
<td>40</td>
<td>8.9</td>
</tr>
<tr>
<td>26 to 35</td>
<td>233</td>
<td>59.3</td>
<td>12</td>
<td>30.8</td>
<td>0</td>
<td>0</td>
<td>245</td>
<td>54.7</td>
</tr>
<tr>
<td>36 to 45</td>
<td>101</td>
<td>25.7</td>
<td>20</td>
<td>51.3</td>
<td>10</td>
<td>62.5</td>
<td>131</td>
<td>29.2</td>
</tr>
<tr>
<td>46 to 55</td>
<td>20</td>
<td>5.1</td>
<td>5</td>
<td>12.8</td>
<td>6</td>
<td>37.5</td>
<td>31</td>
<td>6.9</td>
</tr>
<tr>
<td>More than 55</td>
<td>1</td>
<td>0.3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Totals</td>
<td>393 *</td>
<td>100.0</td>
<td>39</td>
<td>100.0</td>
<td>16</td>
<td>100.0</td>
<td>448</td>
<td>100.0</td>
</tr>
</tbody>
</table>

* 4 teachers did not respond.

The educational qualifications for the responding teacher educators were as follows: the largest group of the teacher educators, (n = 18, 47.4%) had bachelors degrees, 10 (26.3%) had a Diploma in Education and seven (18.4%) had Masters degrees. One teacher educator had 'other qualifications.' For the education officers, the majority (n = 15, 93.8%) had Bachelors degrees and only one had a masters degree. No education officer had either a certificate or diploma in education or other qualifications.
Thirty two technical education professionals, (31 technical teachers and one teacher educator) had "other professional qualifications." The largest number with "other qualifications" (n = 11) had National Certificates in either mechanical engineering, or hotel catering (see Table 4).

Table 4

Educational Qualifications of Responding Technical Education Professionals

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Teachers</th>
<th>Educators</th>
<th>Officers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Untrained *</td>
<td>2</td>
<td>0.5</td>
<td>0</td>
</tr>
<tr>
<td>Certificate in Education</td>
<td>196</td>
<td>49.4</td>
<td>2</td>
</tr>
<tr>
<td>Diploma in Education</td>
<td>111</td>
<td>28.0</td>
<td>10</td>
</tr>
<tr>
<td>Bachelors Degree</td>
<td>55</td>
<td>13.9</td>
<td>18</td>
</tr>
<tr>
<td>Masters Degree</td>
<td>2</td>
<td>0.5</td>
<td>7</td>
</tr>
<tr>
<td>Other b</td>
<td>31</td>
<td>7.8</td>
<td>1</td>
</tr>
<tr>
<td>Totals</td>
<td>397</td>
<td>100.0</td>
<td>38</td>
</tr>
</tbody>
</table>

* Did not receive formal teacher training;
b Higher National Diploma (1); National Diploma (2); National Certificates, in hotel catering and food operations (5), and mechanical engineering (6); Diploma in Technical and Vocational Education (1); National Technicians Certificates (2); Journeyman Class 1 (4); T2B (2); Zimbabwe National Craft Certificate (2); Certificate in Wood Technology (2); Advanced Craft and Artisan Certificate(3); and City and Guilds Certificate (2);
c No response (1).

Institutions Where Professional Qualifications were Obtained

Of the 395 teachers who responded to the question on where professional qualifications were obtained, 67.8% (n = 268) of the technical teachers graduated from teachers colleges, and the next largest group graduated from technical colleges (n = 70,
17.7%). Two technical teachers had high school certificates and had not received any form training in teaching (see Table 5).

Table 5

<table>
<thead>
<tr>
<th>Institutions Where Professionals Obtained Technical Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
</tr>
<tr>
<td>Teachers College</td>
</tr>
<tr>
<td>Technical College</td>
</tr>
<tr>
<td>University</td>
</tr>
<tr>
<td>Other *</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

* did not receive formal teacher training; ** two teachers did not respond; *** one teacher educator did not respond.

Most teacher educators, as shown in Table 5, graduated from the university (n = 19, 50%) and the next largest group graduated from technical colleges (n = 15, 39.5%). One teacher educator did not respond to this question. As for the education officers, all 16 (100%) reported that they obtained their professional qualifications from a university.

Major Technical Subject(s) Studied at Tertiary Institutions

The respondents were asked to indicate the main technical subject they studied at a tertiary institution (any institution beyond high school, such as teachers college, technical college or university). Of the 396 teachers responding to this question, 19.2% (n = 76) had studied metalwork. The next most frequently reported subjects studied by the technical teachers were fashion and fabrics and woodwork with 70 respondents (17.7%) indicating
each of these two areas. The subjects studied at the tertiary level reported by the fewest number of teachers included a combination of both woodwork and metalwork (n = 3, 0.8%). When examining the subject(s) studied by teacher educators, the most frequently reported categories were metalwork and a combination of food and nutrition and fashion and fabrics with 11 teachers (28.2%) reporting each of these areas. Only one of the subjects (Technical graphics) was found to have no teacher educators with a background in that area.

The largest group of education officers responding to the instrument indicated studying building studies (n = 8, 50%). Only two other of the identified subject areas were reported by the responding education officers. These areas were metalwork and a combination of fashion and fabrics and food and nutrition. One education officer for technical subjects had not studied any technical subject (Table 6).

Table 6

<table>
<thead>
<tr>
<th>Subject Area</th>
<th>Teachers</th>
<th></th>
<th>Educators</th>
<th></th>
<th>Officers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Metalwork</td>
<td>76</td>
<td>19.2</td>
<td>11</td>
<td>28.2</td>
<td>2</td>
<td>12.5</td>
</tr>
<tr>
<td>Fashion and Fabrics</td>
<td>70</td>
<td>17.7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Woodwork</td>
<td>70</td>
<td>17.7</td>
<td>2</td>
<td>5.1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Technical Graphics</td>
<td>46</td>
<td>11.6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fashion + Nutrition *</td>
<td>44</td>
<td>11.1</td>
<td>11</td>
<td>28.2</td>
<td>3</td>
<td>18.8</td>
</tr>
<tr>
<td>Building Studies</td>
<td>40</td>
<td>10.1</td>
<td>5</td>
<td>12.8</td>
<td>8</td>
<td>50.0</td>
</tr>
</tbody>
</table>

* (table cont’d)
In terms of what technical subjects the professionals taught in secondary school, the largest group of the technical teachers \((n = 85, 21.6\%)\) taught fashion and fabrics. The next largest group taught metalwork \((n = 73, 18.6\%)\). Very few teachers taught both woodwork and metalwork or fashion and fabrics and food and nutrition \((n = 5, 1.3\%)\).

The largest groups of the responding teacher educators indicated that their secondary teaching experience had been in the area of metalwork and ‘other technical subjects’ \((n = 8, 20.5\%\) each). One teacher educator had taught a combination of woodwork and metalwork in high school.

The largest group among the education officers who responded to this item indicated that their secondary teaching experience had been in the area of Building Studies \((n = 8, 50\%)\). Four of the education officers indicated that their teaching experience had been in a combination of areas. Three of these had taught both in food and nutrition and fashion and fabrics while one person indicated teaching woodwork and metalwork. None of this group of respondents reported teaching experience in the area of technical graphics (see Table 7).
Table 7

Technical Subject(s) Taught by Technical Education Professionals

<table>
<thead>
<tr>
<th>Technical Subject</th>
<th>Teachers n</th>
<th>Teachers %</th>
<th>Educators n</th>
<th>Educators %</th>
<th>Officers n</th>
<th>Officers %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fashion and Fabrics</td>
<td>85</td>
<td>21.6</td>
<td>6</td>
<td>15.4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Metalwork</td>
<td>73</td>
<td>18.6</td>
<td>8</td>
<td>20.5</td>
<td>1</td>
<td>6.3</td>
</tr>
<tr>
<td>Woodwork</td>
<td>70</td>
<td>17.6</td>
<td>2</td>
<td>5.1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Food and Nutrition</td>
<td>56</td>
<td>14.2</td>
<td>5</td>
<td>12.8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Technical Graphics</td>
<td>53</td>
<td>13.5</td>
<td>2</td>
<td>5.1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Building Studies</td>
<td>34</td>
<td>8.7</td>
<td>4</td>
<td>10.3</td>
<td>8</td>
<td>50.0</td>
</tr>
<tr>
<td>Other*</td>
<td>14</td>
<td>3.6</td>
<td>8</td>
<td>20.5</td>
<td>2</td>
<td>12.5</td>
</tr>
<tr>
<td>Fashion + Nutrition b</td>
<td>5</td>
<td>1.3</td>
<td>3</td>
<td>7.7</td>
<td>3</td>
<td>18.8</td>
</tr>
<tr>
<td>Wood + Metalwork c</td>
<td>5</td>
<td>1.3</td>
<td>1</td>
<td>2.6</td>
<td>1</td>
<td>6.3</td>
</tr>
<tr>
<td>Total</td>
<td>393d</td>
<td>100.0</td>
<td>39</td>
<td>100.0</td>
<td>15*</td>
<td>100.0</td>
</tr>
</tbody>
</table>

* Home management, hotel catering; b Combination of fashion and fabrics, and food and nutrition; c combination of woodwork and metalwork; d No response (4); e No response (1)

Other School Levels Where Professionals Teach Technical Subjects

Respondents in the study were asked to indicate if they teach or had taught at other levels within the country’s education system, and, if they had, to report the specific levels at which they had teaching experience. In addition to teaching technical subjects at the Ordinary level (Form IV), the majority of technical teachers, 297 (81.6%) also teach/had taught at the Zimbabwe Junior Certificate (ZJC) level. The next largest group of technical teachers, 27 (7.4%) also teach/had taught at the Advanced level (“A” level). Only two teachers, also teach or had taught their technical subjects at the university level.
The same number of technical teachers (n = 14, 3.8%) teach or had taught at the primary school and at the teachers college level.

All of the teacher educators were currently teaching at the teacher's college level. When they responded regarding at what other levels they had taught, almost one-third indicated they had taught at each of the ZJC and “O” levels (n = 12, 32.4% each). In addition, seven (18.9%) had taught at the university level, and only one (2.7%) had taught at the technical college level. Responses received from the education officers were similar to those from the teacher educators in that about one-third had taught at each of the ZJC and “O” levels (n = 5, 33.3%). However, none of the education officers had taught at either the technical college or the university level (Table 8).

Table 8

| Other School Levels at Which Professionals Teach or Have Taught Technical Subjects |
|--------------------------------|-------|-------|-------|-------|
| School Level                  | Teachers | Educators | Officers | Total |
|                               | n   | %    | n   | %    | n   | %    | n   | %    |
| Primary school                | 14  | 3.8 | 3   | 8.1 | 1   | 6.7 | 18  | 4.3 |
| ZJC level a                   | 297 | 81.6 | 12  | 32.4 | 5   | 33.3 | 314 | 75.5 |
| “O” level b                   | N/A | N/A | 12  | 32.4 | 5   | 33.3 | 17  | 4.1 |
| “A” level c                   | 27  | 7.4 | 2   | 5.4 | 1   | 6.7 | 30  | 7.2 |
| Teachers college              | 14  | 3.8 | N/A | N/A | 3   | 20.0 | 17  | 4.1 |
| Technical college             | 10  | 2.7 | 1   | 2.7 | 0   | 0   | 11  | 2.6 |
| University                    | 2   | 0.5 | 7   | 18.9 | 0   | 0   | 9   | 2.2 |
| Total                         | 364 | 100.0 | 37 | 100.0 | 15 | 100.0 | 416 | 100.0 |

*a 2 years of secondary education; b 4 years of secondary education; c 6 years of secondary education; d 33 teachers did not respond; e 2 educators did not respond; f one education officer did not respond; N/A = not applicable.

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Teaching Experience

Technical teachers and teacher educators were asked to indicate number of years of teaching experience. The majority of the technical teachers, \( n = 216, 54.7\% \) and the largest group \( n = 19, 48.7\% \) of the teacher educators had between four and ten years teaching experience. Relatively few of the technical teachers \( n = 44, 11.1\% \) had 18 years or more teaching experience. Eight \( 20.5\% \) teacher educators had between 11 and 17 years teaching experience and none of them had taught beyond 17 years.

Education officers were asked to indicate number of years of experience as education officers for technical subjects. There were equal numbers of education officers, \( n = 7, 43.8\% \) each in each of the 11 to 17 years category and the 18 years or more category (Table 9).

Table 9

Teaching or Work Experience for Responding Technical Education Professionals

<table>
<thead>
<tr>
<th>Experience</th>
<th>Teachers</th>
<th>Educators</th>
<th>Officers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( n )</td>
<td>( % )</td>
<td>( n )</td>
</tr>
<tr>
<td>3 years or less</td>
<td>63</td>
<td>15.9</td>
<td>12</td>
</tr>
<tr>
<td>4 to 10 years</td>
<td>216</td>
<td>54.7</td>
<td>19</td>
</tr>
<tr>
<td>11 to 17 years</td>
<td>72</td>
<td>18.2</td>
<td>8</td>
</tr>
<tr>
<td>18 years or more</td>
<td>44</td>
<td>11.1</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
<td>395*</td>
<td>100.0</td>
<td>39</td>
</tr>
</tbody>
</table>

*2 teachers did not respond

Responsible Authority and Geographic Location of the Secondary Schools

In response to the question of responsible authority for the secondary schools where the technical teachers taught, most of the teachers \( n = 351, 83.3\% \) indicated that
the schools where they taught were owned by the government, 20 (5.1%) were church schools, and 43 (10.9%) were private schools. Of the responding teachers, 277 (70.5%) indicated that they taught in a school located in an urban area, while 116 (29.6%) reported teaching in a school geographically located in a suburban area.

Objective Two

The second objective of the study was to describe the degree of emphasis that is being placed on each of a series of stated technical educational program purposes at the Ordinary level as it CURRENTLY operates, as perceived by each of the three groups of technical education professionals. The purpose statements were structured such that 10 of the items reflected an emphasis on technical education and 10 of the items reflected an emphasis on general education. The respondents used a five-point anchored response scale (1 = Not emphasized; 2 = Slightly emphasized; 3 = Somewhat/moderately emphasized; 4 = Emphasized; and 5 = Strongly emphasized) to rate their perception of the emphasis being placed on each of the twenty stated purposes of technical education in Zimbabwe's secondary schools.

The following interpretive scale was developed by the researcher to aid in reporting the results of the respondents' ratings: 4.5 or greater = Strongly Emphasized; 3.50 to 4.49 = Emphasized; 2.50 to 3.49 = Somewhat/Moderately Emphasized; 1.50 to 2.49 = Slightly Emphasized; and less than 1.5 = Not emphasized. Emphasis means (M) and standard deviations (SD) for each of the statements of purposes as perceived by each group of technical education professionals (technical teachers, college lecturers and education officers) are presented in the following sections.
Current Emphasis as Perceived by Technical Teachers

The items rated highest by the responding technical subject teachers were:

"Develop in students an interest toward trade or craft oriented work" (mean = 4.47);

"Develop a high degree of skill in the use of basic tools for your trade" (mean = 4.45);

"Develop technical skills of a general nature such as measuring, planning, drawing etc." (mean = 4.36); "Develop technical skills to a degree where the students are self-reliant" (mean = 4.28); and "Provide career education to assist students in making informed and meaningful occupational choices" (mean = 4.25). Of these highest rated five items, two were of a technical nature and three were of a general nature. In addition, these highest rated items were in the interpretive category of "Emphasized" (3.5 to 4.49). Overall, the teachers rated 18 of the 20 items in the "Emphasized" category and two of the items in the "Somewhat/Moderately Emphasized" category (Table 10).

Table 10

Current Emphasis on Purposes of Technical Education as Perceived by the Technical Subject Teachers

<table>
<thead>
<tr>
<th>Rank Order</th>
<th>Item Type</th>
<th>Purposes of Technical Education</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5 (G)</td>
<td>Develop in students an interest towards trade or craft oriented work</td>
<td>4.470</td>
<td>.804</td>
</tr>
<tr>
<td>2</td>
<td>13 (T)</td>
<td>Develop a high degree of skill in the use of basic tools for your trade</td>
<td>4.452</td>
<td>.928</td>
</tr>
<tr>
<td>3</td>
<td>4 (G)</td>
<td>Develop technical skills of a general nature such as measuring, planning, drawing etc</td>
<td>4.362</td>
<td>.914</td>
</tr>
<tr>
<td>4</td>
<td>18(T)</td>
<td>Develop technical skills to a degree where the students are self-reliant</td>
<td>4.277</td>
<td>1.029</td>
</tr>
</tbody>
</table>

(table cont’d)
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Description</th>
<th>Weight</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1</td>
<td>(G) Provide career education to assist students in making informed and meaningful occupational choices</td>
<td>4.249</td>
<td>1.005</td>
</tr>
<tr>
<td>6</td>
<td>20</td>
<td>(T) Prepare students for enrollment in highly skilled post secondary school technical education programs</td>
<td>4.152</td>
<td>1.037</td>
</tr>
<tr>
<td>7</td>
<td>15</td>
<td>(T) Develop safety skills related to a specific occupation</td>
<td>4.090</td>
<td>1.112</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>(G) Develop human relation skills that will enable students to work cooperatively with others in various fields</td>
<td>4.076</td>
<td>0.989</td>
</tr>
<tr>
<td>9</td>
<td>6</td>
<td>(G) Develop general problem solving skills related to job situations</td>
<td>4.054</td>
<td>1.062</td>
</tr>
<tr>
<td>10</td>
<td>12</td>
<td>(T) Develop in students basic home skills useful in the home or for leisure use</td>
<td>3.936</td>
<td>1.165</td>
</tr>
<tr>
<td>11</td>
<td>19</td>
<td>(T) Develop highly specialized technical skills necessary for the production of precise finished products</td>
<td>3.907</td>
<td>1.147</td>
</tr>
<tr>
<td>12</td>
<td>2</td>
<td>(G) Provide opportunities for the application of science and mathematics concepts in the technical fields</td>
<td>3.787</td>
<td>1.066</td>
</tr>
<tr>
<td>13</td>
<td>11</td>
<td>(T) Develop manipulative skills for the purpose of fitting persons in specific industries.</td>
<td>3.773</td>
<td>1.136</td>
</tr>
<tr>
<td>14</td>
<td>10</td>
<td>(G) Provide basic theoretical knowledge on key materials commonly used in Zimbabwean industries</td>
<td>3.764</td>
<td>1.138</td>
</tr>
<tr>
<td>15</td>
<td>16</td>
<td>(T) Develop specific employment skills needed to enter a particular occupational field</td>
<td>3.739</td>
<td>1.116</td>
</tr>
<tr>
<td>16</td>
<td>9</td>
<td>(G) Provide consumer knowledge that enables students to be wise consumers of industrial products</td>
<td>3.698</td>
<td>1.239</td>
</tr>
<tr>
<td>17</td>
<td>8</td>
<td>(G) Develop general technical skills applicable to various occupational clusters</td>
<td>3.542</td>
<td>1.049</td>
</tr>
<tr>
<td>18</td>
<td>7</td>
<td>(G) Provide occupational information pertaining to a broad range of occupations</td>
<td>3.522</td>
<td>1.123</td>
</tr>
<tr>
<td>19</td>
<td>17</td>
<td>(T) Provide exploratory experiences related to current practices in a specific business or industry</td>
<td>3.422</td>
<td>1.125</td>
</tr>
</tbody>
</table>

*(table cont’d)*
Current Emphasis as Perceived by Teacher Educators

The five items rated highest by the responding teacher educators were: “Develop in students an interest towards trade or craft oriented work” (mean = 3.82); “Develop technical skills of a general nature such as measuring, planning, drawing etc.” (mean = 3.72); “Develop safety skills related to a specific occupation” (mean = 3.72); “Develop a high degree of skill in the use of basic tools for your trade” (mean = 3.69); and “Prepare students for enrollment in highly skilled post secondary school technical education programs” (mean = 3.56). Two of the items rated highest were of a technical nature and three were of a general nature. All the highest rated items were in the interpretive category of “Emphasized” (3.5 to 4.49). Overall, the teacher educators rated the twenty items as follows: five in the category “Emphasized” and fifteen in the “Somewhat/Moderately Emphasized” category (see Table 11).

Table 11

Current Emphasis on Purposes of Technical Education as Perceived by the Teacher Educators

<table>
<thead>
<tr>
<th>Rank Order</th>
<th>Item Type</th>
<th>Purposes of Technical Education</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5(G)</td>
<td>Develop in students an interest towards trade or craft oriented work</td>
<td>3.821</td>
<td>.997</td>
</tr>
<tr>
<td>2</td>
<td>4(G)</td>
<td>Develop technical skills of a general nature such as measuring, planning, drawing etc</td>
<td>3.718</td>
<td>1.050</td>
</tr>
</tbody>
</table>

* (G) General education item, (T) Technical education item;

Response scale: 5 = Strongly emphasized; 4 = Emphasized; 3 = Somewhat/moderately emphasized; 2 = Slightly emphasized; 1 = Not emphasized.
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Score</th>
<th>Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>15(T) Develop safety skills related to a specific occupation</td>
<td>3.718</td>
<td>.999</td>
</tr>
<tr>
<td>4</td>
<td>13(T) Develop a high degree of skill in the use of basic tools for your trade</td>
<td>3.692</td>
<td>1.004</td>
</tr>
<tr>
<td>5</td>
<td>20(T) Prepare students for enrollment in highly skilled post-secondary school technical education programs</td>
<td>3.564</td>
<td>1.119</td>
</tr>
<tr>
<td>6</td>
<td>7 (G) Provide occupational information pertaining to a broad range of occupations</td>
<td>3.308</td>
<td>1.030</td>
</tr>
<tr>
<td>7</td>
<td>3 (G) Develop human relation skills that will enable students to work cooperatively with others in various fields</td>
<td>3.231</td>
<td>1.111</td>
</tr>
<tr>
<td>8</td>
<td>16(T) Develop specific employment skills needed to enter a particular occupational field</td>
<td>3.231</td>
<td>1.158</td>
</tr>
<tr>
<td>9</td>
<td>6 (G) Develop general problem solving skills related to job situations</td>
<td>3.179</td>
<td>1.211</td>
</tr>
<tr>
<td>10</td>
<td>1 (G) Provide career education to assist students in making informed and meaningful occupational choices</td>
<td>3.128</td>
<td>1.151</td>
</tr>
<tr>
<td>11</td>
<td>2 (G) Provide opportunities for the application of science and mathematics concepts in the technical fields</td>
<td>3.103</td>
<td>1.119</td>
</tr>
<tr>
<td>12</td>
<td>10(G) Provide basic theoretical knowledge on key materials commonly used in Zimbabwean industries</td>
<td>3.051</td>
<td>1.123</td>
</tr>
<tr>
<td>13</td>
<td>12(T) Develop in students basic home skills useful in the home or for leisure use</td>
<td>3.026</td>
<td>1.287</td>
</tr>
<tr>
<td>14</td>
<td>8 (G) Develop general technical skills applicable to various occupational clusters</td>
<td>3.000</td>
<td>1.051</td>
</tr>
<tr>
<td>15</td>
<td>11(T) Develop manipulative skills for the purpose of fitting persons in specific industries</td>
<td>3.000</td>
<td>1.298</td>
</tr>
<tr>
<td>16</td>
<td>14(T) Develop technical expertise in the operation of power driven machines used in related industries</td>
<td>3.000</td>
<td>1.318</td>
</tr>
<tr>
<td>17</td>
<td>18(T) Develop technical skills to a degree where the students are self-reliant</td>
<td>2.974</td>
<td>1.305</td>
</tr>
</tbody>
</table>

(table cont’d)
18  17(T)  Provide exploratory experiences related to current practices in a specific business or industry  2.949  1.123
19  19(T)  Develop highly specialized technical skills necessary for the production of precise finished products  2.868  1.234
20  9 (G)  Provide consumer knowledge that enables students to be wise consumers of industrial products  2.821  1.355

*(G) = General education item, (T) = Technical education item;
Response scale: 5 = Strongly emphasized; 4 = Emphasized; 3 = Somewhat/moderately emphasized; 2 = Slightly emphasized; 1 = Not emphasized.

Current Emphasis as Perceived by Education Officers

Education officers rated highest the following five items “Develop technical skills of a general nature such as measuring, planning, drawing etc.” (mean = 4.56); “Develop in students an interest towards trade or craft oriented work” (mean = 4.31); “Develop a high degree of skill in the use of basic tools for your trade” (mean = 4.00); “Develop in students basic home skills useful in the home or for leisure” (mean = 3.75); and “Develop specific employment skills needed to enter a particular occupational field” (mean = 3.75).

Of the five highest rated items, two were general education items and three were of a technical nature. In addition, four of the highest rated items were in the interpretive category of “Emphasized” (3.5 to 4.49) while one was in the “Strongly Emphasized” category (4.5 or greater). Overall, the rating of the twenty items by the education officers were as follows: “Strongly Emphasized”(1), “Emphasized”(8) “Somewhat Emphasized”(9) and “Slightly/Moderately Emphasized”(2) (Table 12).
Table 12

**Current Emphasis on Purposes of Technical Education as Perceived by Education Officers**

<table>
<thead>
<tr>
<th>Rank Order</th>
<th>Item Type</th>
<th>Purposes of Technical Education</th>
<th>Mean (^b)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4 (G)</td>
<td>Develop technical skills of a general nature such as measuring, planning, drawing etc</td>
<td>4.563</td>
<td>.629</td>
</tr>
<tr>
<td>2</td>
<td>5 (G)</td>
<td>Develop in students an interest towards trade or craft oriented work</td>
<td>4.313</td>
<td>.602</td>
</tr>
<tr>
<td>3</td>
<td>13(T)</td>
<td>Develop a high degree of skill in the use of basic tools for your trade</td>
<td>4.000</td>
<td>1.095</td>
</tr>
<tr>
<td>4</td>
<td>12(T)</td>
<td>Develop in students basic home skills useful in the home or for leisure use</td>
<td>3.750</td>
<td>.775</td>
</tr>
<tr>
<td>5</td>
<td>16(T)</td>
<td>Develop specific employment skills needed to enter a particular occupational field</td>
<td>3.750</td>
<td>1.125</td>
</tr>
<tr>
<td>6</td>
<td>11(T)</td>
<td>Develop manipulative skills for the purpose of fitting persons in specific industries.</td>
<td>3.688</td>
<td>1.078</td>
</tr>
<tr>
<td>7</td>
<td>20(T)</td>
<td>Prepare students for enrollment in highly skilled post secondary school technical education programs</td>
<td>3.688</td>
<td>.946</td>
</tr>
<tr>
<td>8</td>
<td>15(T)</td>
<td>Develop safety skills related to a specific occupation</td>
<td>3.500</td>
<td>.730</td>
</tr>
<tr>
<td>9</td>
<td>1 (G)</td>
<td>Provide career education to assist students in making informed and meaningful occupational choices</td>
<td>3.500</td>
<td>1.095</td>
</tr>
<tr>
<td>10</td>
<td>3 (G)</td>
<td>Develop human relation skills that will enable students to work cooperatively with others in various fields</td>
<td>3.438</td>
<td>.727</td>
</tr>
<tr>
<td>11</td>
<td>10(G)</td>
<td>Provide basic theoretical knowledge on key materials commonly used in Zimbabwean industries</td>
<td>3.375</td>
<td>1.088</td>
</tr>
<tr>
<td>12</td>
<td>18(T)</td>
<td>Develop technical skills to a degree where the students are self-reliant</td>
<td>3.313</td>
<td>1.078</td>
</tr>
<tr>
<td>13</td>
<td>9 (G)</td>
<td>Provide consumer knowledge that enables students to be wise consumers of industrial products.</td>
<td>3.188</td>
<td>1.276</td>
</tr>
</tbody>
</table>

(table cont’d)

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<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>6 (G)</td>
<td>Develop general problem solving skills related to job situations</td>
<td>3.125</td>
</tr>
<tr>
<td>15</td>
<td>19(T)</td>
<td>Develop highly specialized technical skills necessary for the production of precise finished products</td>
<td>3.125</td>
</tr>
<tr>
<td>16</td>
<td>8 (G)</td>
<td>Develop general technical skills applicable to various occupational clusters</td>
<td>2.875</td>
</tr>
<tr>
<td>17</td>
<td>7 (G)</td>
<td>Provide occupational information pertaining to a broad range of occupations</td>
<td>2.813</td>
</tr>
<tr>
<td>18</td>
<td>17(T)</td>
<td>Provide exploratory experiences related to current practices in a specific business or industry</td>
<td>2.563</td>
</tr>
<tr>
<td>19</td>
<td>2 (G)</td>
<td>Provide opportunities for the application of science and mathematics concepts in the technical fields</td>
<td>2.438</td>
</tr>
<tr>
<td>20</td>
<td>14(T)</td>
<td>Develop technical expertise in the operation of power driven machines used in related industries</td>
<td>2.125</td>
</tr>
</tbody>
</table>

*(G) = General education item, (T) = Technical education item.

Response scale: 5 = Strongly emphasized; 4 = Emphasized; 3 = Somewhat/moderately emphasized; 2 = Slightly emphasized; 1 = Not emphasized.

Current Emphasis as Perceived by All Technical Education Professionals

When all the responding technical education professionals were put together, the five items rated highest were “Develop in students an interest towards trade or craft oriented work” (mean = 4.41); “Develop a high degree of skill in the use of basic tools for your trade” (mean = 4.37); “Develop technical skills of a general nature such as measuring, planning, drawing etc.” (mean = 4.31); “Develop technical skills to a degree where the students are self-reliant” (mean = 4.13); and “Provide career education to assist students in making informed and meaningful occupational choices” (mean = 4.13).

Of these highest rated five items, three were general education items and two were technical education items. In addition, all the highest rated items were in the interpretive category of “Emphasized” (3.5 to 4.49). Overall, all the technical education professionals
rated the twenty items as follows; "Emphasized" (16) and "Somewhat Emphasized" (4) (see Table 13).

Table 13

**Current Emphasis on Purposes of Technical Education as Perceived by All the Technical Education Professionals**

<table>
<thead>
<tr>
<th>Rank Order</th>
<th>Item Type</th>
<th>Purposes of Technical Education</th>
<th>Mean b</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5 (G)</td>
<td>Develop in students an interest towards trade or craft oriented work</td>
<td>4.408</td>
<td>.835</td>
</tr>
<tr>
<td>2</td>
<td>13(T)</td>
<td>Develop a high degree of skill in the use of basic tools for your trade</td>
<td>4.369</td>
<td>.966</td>
</tr>
<tr>
<td>3</td>
<td>4 (G)</td>
<td>Develop technical skills of a general nature such as measuring, planning, drawing etc</td>
<td>4.313</td>
<td>.935</td>
</tr>
<tr>
<td>4</td>
<td>18(T)</td>
<td>Develop technical skills to a degree where the students are self-reliant</td>
<td>4.131</td>
<td>1.127</td>
</tr>
<tr>
<td>5</td>
<td>1 (G)</td>
<td>Provide career education to assist students in making informed and meaningful occupational choices</td>
<td>4.125</td>
<td>1.073</td>
</tr>
<tr>
<td>6</td>
<td>20(T)</td>
<td>Prepare students for enrollment in highly skilled post secondary school technical education programs</td>
<td>4.085</td>
<td>1.055</td>
</tr>
<tr>
<td>7</td>
<td>15(T)</td>
<td>Develop safety skills related to a specific occupation</td>
<td>4.036</td>
<td>1.099</td>
</tr>
<tr>
<td>8</td>
<td>3 (G)</td>
<td>Develop human relation skills that will enable students to work cooperatively with others in various fields</td>
<td>3.980</td>
<td>1.024</td>
</tr>
<tr>
<td>9</td>
<td>6 (G)</td>
<td>Develop general problem solving skills related to job situations</td>
<td>3.944</td>
<td>1.113</td>
</tr>
<tr>
<td>10</td>
<td>12(T)</td>
<td>Develop in students basic home skills useful in the home or leisure use</td>
<td>3.850</td>
<td>1.191</td>
</tr>
<tr>
<td>11</td>
<td>13(T)</td>
<td>Develop highly specialized technical skills necessary for the production of precise finished products</td>
<td>3.791</td>
<td>1.202</td>
</tr>
</tbody>
</table>

(table cont’d)
12 11(T) Develop manipulative skills for the purpose of fitting persons in specific industries. 3.701 1.167
13 16(T) Develop specific employment skills needed to enter a particular occupational field 3.695 1.127
14 10(G) Provide basic theoretical knowledge on key materials commonly used in Zimbabwean industries 3.688 1.152
15 2 (G) Provide opportunities for the application of science and mathematics concepts in the technical fields 3.680 1.115
16 9 (G) Provide consumer knowledge that enables students to be wise consumers of industrial products 3.604 1.274
17 8 (G) Develop general technical skills applicable to various occupational clusters 3.471 1.061
18 7 (G) Provide occupational information pertaining to a broad range of occupations 3.423 1.139
19 17(T) Provide exploratory experiences related to current practices in a specific business or industry 3.350 1.133
20 14 (T) Develop technical expertise in the operation of power driven machines used in related industries 3.288 1.371

*(G) = General education item, (T) = Technical education item.

b Response scale: 5 = Strongly emphasized; 4 = Emphasized; 3 = Somewhat/moderately emphasized; 2 = Slightly emphasized; 1 = Not emphasized.

In addition to indicating the extent to which they perceived the twenty stated purposes to be currently being emphasized, the respondents were asked to add other purposes they felt were being emphasized. Not all the technical education professionals responded to this question (number 21, section 2 and 3 Appendices A, B, and C). Based on the emerging themes from the purposes presented by the professionals, three additional purposes were identified as being emphasized currently. The "provision of knowledge of calculating costs of artefacts and pricing artefacts" was the purpose considered by most
responding professionals (28) to be currently emphasized. An additional purpose
identified by the next largest number of respondents (19) was “development and
interpretation of simple working drawings.” The “provision of business management and
marketing skills” was also identified as a purpose by seven respondents.

Objective Three

Objective three of this study ascertained the degree of emphasis that IDEALLY
should be placed on each of a series of stated technical educational program purposes at
the Ordinary level, as perceived by each of the three groups of technical education
professionals. The same twenty statements of purposes for technical education programs
as in section two (current focus) of the survey instrument were used in section three (the
ideal focus). The statements of purposes were reordered to avoid influencing the
respondents’ choices. The same rating scale as used in objective two was used for this
objective. Presented in respective sections are the mean ratings for each of the purpose
statements based on responses of the groups of technical education professionals.

Ideal Emphasis as Perceived by Technical Teachers

The items rated highest by the responding technical subject teachers were
“Develop technical skills to a degree where the students are self-reliant (mean = 4.63);
“Develop a high degree of skill in the use of basic tools for your trade (mean = 4.56);
“Provide career education to assist students in making informed and meaningful
occupational choices” (mean = 4.44); “Prepare students for enrollment in highly skilled
post secondary school technical education programs” (mean = 4.42); and “Develop in
students an interest towards trade or craft oriented work” (mean = 4.48).
Two of the highest rated five items were of a general nature and three were of a technical nature. In addition, two of these highest rated items were in the interpretative category of "Strongly Emphasized" (4.5 and above), and three of them were in the "Emphasized" (3.5 to 4.49) category. Overall, the teachers rated two of the twenty items in the "Strongly Emphasized" category and eighteen of the items in the "Emphasized" category (see Table 14).

### Table 14

<table>
<thead>
<tr>
<th>Rank Order</th>
<th>Item Type</th>
<th>Rank</th>
<th>Item</th>
<th>Purposes of Technical Education</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>T</td>
<td>8</td>
<td>Develop technical skills to a degree where the students are self-reliant</td>
<td>4.627</td>
<td>.736</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>T</td>
<td>3</td>
<td>Develop a high degree of skill in the use of basic tools for your trade</td>
<td>4.555</td>
<td>.753</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>G</td>
<td>11</td>
<td>Provide career education to assist students in making informed and meaningful occupational choices</td>
<td>4.435</td>
<td>.800</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>T</td>
<td>10</td>
<td>Prepare students for enrollment in highly skilled post secondary school technical education programs</td>
<td>4.415</td>
<td>.841</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>G</td>
<td>15</td>
<td>Develop in students an interest towards trade or craft oriented work</td>
<td>4.480</td>
<td>.790</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>T</td>
<td>1</td>
<td>Develop manipulative skills for the purpose of fitting persons in specific industries.</td>
<td>4.400</td>
<td>.894</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>T</td>
<td>5</td>
<td>Develop safety skills related to a specific occupation</td>
<td>4.370</td>
<td>.879</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>G</td>
<td>13</td>
<td>Develop human relation skills that will enable students to work cooperatively with others in various fields</td>
<td>4.331</td>
<td>.810</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>G</td>
<td>16</td>
<td>Develop general problem solving skills related to job situations</td>
<td>4.319</td>
<td>.937</td>
<td></td>
</tr>
</tbody>
</table>

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10. Develop technical skills of a general nature such as measuring, planning, drawing etc. (G)  
11. Develop highly specialized technical skills necessary for the production of precise finished products (T)  
12. Develop specific employment skills needed to enter a particular occupational field (T)  
13. Provide basic theoretical knowledge on key materials commonly used in Zimbabwean industries (G)  
14. Provide exploratory experiences related to current practices in a specific business or industry (T)  
15. Provide consumer knowledge that enables students to be wise consumers of industrial products. (G)  
16. Develop technical expertise in the operation of power driven machines used in related industries (T)  
17. Provide opportunities for the application of science and mathematics concepts in the technical fields (G)  
18. Develop in students basic home skills useful in the home or for leisure use (T)  
19. Provide occupational information pertaining to a broad range of occupations (T)  
20. Develop general technical skills applicable to various occupational clusters (G)  

*(G) = General education item, (T) = Technical education item;  
Response scale: 5 = Strongly emphasized; 4 = Emphasized; 3 = Somewhat/moderately emphasized; 2 = Slightly emphasized; 1 = Not emphasized.  

Ideal Emphasis as Perceived by Teacher Educators  
The items rated highest by the responding teacher educators were “Develop technical skills to a degree where the students are self-reliant” (mean = 4.61); “Develop general problem solving skills related to job situations” (mean = 4.58); “Develop in students an interest towards trade or craft oriented work” (mean = 4.55); “Provide career...
education to assist students in making informed and meaningful occupational choices (mean = 4.55); and "Develop safety skills related to a specific occupation (mean = 4.53).

Of the five highest rated items, two were of a technical nature and three were of a general nature. In addition, these highest rated items were in the interpretive category of "Strongly Emphasized" (4.5 and above). Overall, the teacher educators rated five of the 20 items in the "Strongly Emphasized" category and fifteen items in the "Emphasized" category (Table 15).

Table 15

<table>
<thead>
<tr>
<th>Rank Order</th>
<th>Item Type</th>
<th>Purposes of Technical Education</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8 (T)</td>
<td>Develop technical skills to a degree where the students are self-reliant</td>
<td>4.605</td>
<td>.855</td>
</tr>
<tr>
<td>2</td>
<td>16(G)</td>
<td>Develop general problem solving skills related to job situations</td>
<td>4.579</td>
<td>.826</td>
</tr>
<tr>
<td>3</td>
<td>15(G)</td>
<td>Develop in students an interest towards trade or craft oriented work</td>
<td>4.553</td>
<td>.724</td>
</tr>
<tr>
<td>4</td>
<td>11(G)</td>
<td>Provide career education to assist students in making informed and meaningful occupational choices</td>
<td>4.553</td>
<td>.891</td>
</tr>
<tr>
<td>5</td>
<td>5 (T)</td>
<td>Develop safety skills related to a specific occupation</td>
<td>4.526</td>
<td>.951</td>
</tr>
<tr>
<td>6</td>
<td>3 (T)</td>
<td>Develop a high degree of skill in the use of basic tools for your trade</td>
<td>4.405</td>
<td>.956</td>
</tr>
<tr>
<td>7</td>
<td>10(T)</td>
<td>Prepare students for enrollment in highly skilled post secondary school technical education programs</td>
<td>4.395</td>
<td>.790</td>
</tr>
<tr>
<td>8</td>
<td>13(G)</td>
<td>Develop human relation skills that will enable students to work cooperatively with others in various fields</td>
<td>4.342</td>
<td>.781</td>
</tr>
</tbody>
</table>

(table cont’d)
<table>
<thead>
<tr>
<th>9</th>
<th>12(G) Provide opportunities for the application of science and mathematics concepts in the technical fields</th>
<th>4.237</th>
<th>.998</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>4 (T) Develop technical expertise in the operation of power driven machines used in related industries</td>
<td>4.237</td>
<td>1.025</td>
</tr>
<tr>
<td>11</td>
<td>6 (T) Develop specific employment skills needed to enter a particular occupational field</td>
<td>4.211</td>
<td>.875</td>
</tr>
<tr>
<td>12</td>
<td>9 (T) Develop highly specialized technical skills necessary for the production of precise finished products</td>
<td>4.184</td>
<td>1.010</td>
</tr>
<tr>
<td>13</td>
<td>20(G) Provide basic theoretical knowledge on key materials commonly used in Zimbabwean industries</td>
<td>4.162</td>
<td>1.014</td>
</tr>
<tr>
<td>14</td>
<td>19(G) Provide consumer knowledge that enables students to be wise consumers of industrial products</td>
<td>4.158</td>
<td>.945</td>
</tr>
<tr>
<td>15</td>
<td>1 (T) Develop manipulative skills for the purpose of fitting persons in specific industries.</td>
<td>4.158</td>
<td>1.053</td>
</tr>
<tr>
<td>16</td>
<td>17(G) Provide occupational information pertaining to a broad range of occupations</td>
<td>4.105</td>
<td>.894</td>
</tr>
<tr>
<td>17</td>
<td>14(G) Develop technical skills of a general nature such as measuring, planning, drawing etc</td>
<td>4.105</td>
<td>1.158</td>
</tr>
<tr>
<td>18</td>
<td>7 (T) Provide exploratory experiences related to current practices in a specific business or industry</td>
<td>4.026</td>
<td>.944</td>
</tr>
<tr>
<td>19</td>
<td>18(G) Develop general technical skills applicable to various occupational clusters</td>
<td>3.868</td>
<td>.935</td>
</tr>
<tr>
<td>20</td>
<td>2 (T) Develop in students basic home skills useful in the home or for leisure use</td>
<td>3.568</td>
<td>1.303</td>
</tr>
</tbody>
</table>

\(^a\) (G) = General education item, (T) = Technical education item; 
\(^b\) Response scale: 5 = Strongly emphasized; 4 = Emphasized; 3 = Somewhat/moderately emphasized; 2 = Slightly emphasized; 1 = Not emphasized.

Ideal Emphasis as Perceived by Education Officers

The items rated highest by the responding education officers were "Prepare students for enrollment in highly skilled post secondary school technical education..."
programs" (mean = 4.81); “Develop a high degree of skill in the use of basic tools for your trade” (mean = 4.75); “Develop in students an interest towards trade or craft oriented work” (mean = 4.63); “Provide career education to assist students in making informed and meaningful occupational choices” (mean = 4.63); and “Develop technical skills to a degree where the students are self-reliant” (mean = 4.56).

Two of the highest rated items were of a general education nature and three were of a technical nature. All the highest rated items were in the interpretive category of “Strongly Emphasized” (4.5 and above). Overall, the education officers rated 8 items in the “Strongly Emphasized” category and twelve items in the “Emphasized” category (Table 16).

Table 16

Ideal Emphasis on Purposes of Technical Education as Perceived by Education Officers

<table>
<thead>
<tr>
<th>Rank Order Type</th>
<th>Item Type</th>
<th>Purposes of Technical Education</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10(T)</td>
<td>Prepare students for enrollment in highly skilled post secondary school technical education programs</td>
<td>4.813</td>
<td>.403</td>
</tr>
<tr>
<td>2</td>
<td>3 (T)</td>
<td>Develop a high degree of skill in the use of basic tools for your trade</td>
<td>4.750</td>
<td>.447</td>
</tr>
<tr>
<td>3</td>
<td>15(G)</td>
<td>Develop in students an interest towards trade or craft oriented work</td>
<td>4.625</td>
<td>.500</td>
</tr>
<tr>
<td>4</td>
<td>11(G)</td>
<td>Provide career education to assist students in making informed and meaningful occupational choices</td>
<td>4.625</td>
<td>.619</td>
</tr>
<tr>
<td>5</td>
<td>8 (T)</td>
<td>Develop technical skills to a degree where the students are self-reliant</td>
<td>4.563</td>
<td>.512</td>
</tr>
<tr>
<td>6</td>
<td>12(G)</td>
<td>Provide opportunities for the application of science and mathematics concepts in the technical fields</td>
<td>4.563</td>
<td>.629</td>
</tr>
</tbody>
</table>

(table cont’d)
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Description</th>
<th>Score</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>1 (T)</td>
<td>Develop manipulative skills for the purpose of fitting persons in specific industries.</td>
<td>4.563</td>
<td>.629</td>
</tr>
<tr>
<td>8</td>
<td>6 (T)</td>
<td>Develop specific employment skills needed to enter a particular occupational field</td>
<td>4.563</td>
<td>.727</td>
</tr>
<tr>
<td>9</td>
<td>19(G)</td>
<td>Provide consumer knowledge that enables students to be wise consumers of industrial products</td>
<td>4.313</td>
<td>.704</td>
</tr>
<tr>
<td>10</td>
<td>13(G)</td>
<td>Develop human relation skills that will enable students to work cooperatively with others in various fields</td>
<td>4.313</td>
<td>.793</td>
</tr>
<tr>
<td>11</td>
<td>20(G)</td>
<td>Provide basic theoretical knowledge on key materials commonly used in Zimbabwean industries</td>
<td>4.250</td>
<td>.856</td>
</tr>
<tr>
<td>12</td>
<td>4 (T)</td>
<td>Develop technical expertise in the operation of power driven machines used in related industries</td>
<td>4.250</td>
<td>1.000</td>
</tr>
<tr>
<td>13</td>
<td>16(G)</td>
<td>Develop general problem solving skills related to job situations</td>
<td>4.188</td>
<td>1.047</td>
</tr>
<tr>
<td>14</td>
<td>14(G)</td>
<td>Develop technical skills of a general nature such as measuring, planning, drawing etc</td>
<td>4.063</td>
<td>.929</td>
</tr>
<tr>
<td>15</td>
<td>7 (T)</td>
<td>Provide exploratory experiences related to current practices in a specific business or industry</td>
<td>4.063</td>
<td>.929</td>
</tr>
<tr>
<td>16</td>
<td>9 (T)</td>
<td>Develop highly specialized technical skills necessary for the production of precise finished products</td>
<td>4.063</td>
<td>1.063</td>
</tr>
<tr>
<td>17</td>
<td>5 (T)</td>
<td>Develop safety skills related to a specific occupation</td>
<td>4.063</td>
<td>1.389</td>
</tr>
<tr>
<td>18</td>
<td>17(G)</td>
<td>Provide occupational information pertaining to a broad range of occupations</td>
<td>3.813</td>
<td>.834</td>
</tr>
<tr>
<td>19</td>
<td>2 (T)</td>
<td>Develop in students basic home skills useful in the home or for leisure use</td>
<td>3.813</td>
<td>.750</td>
</tr>
<tr>
<td>20</td>
<td>18(G)</td>
<td>Develop general technical skills applicable to various occupational clusters</td>
<td>3.563</td>
<td>.727</td>
</tr>
</tbody>
</table>

*(G) = General education item, (T) = Technical education item; Response scale: 5 = Strongly emphasized; 4 = Emphasized; 3 = Somewhat/moderately emphasized; 2 = Slightly emphasized; 1 = Not emphasized.*
Ideal Emphasis as Perceived by All Technical Education Professionals

The items rated highest by all the technical education professionals were “Develop technical skills to a degree where the students are self-reliant” (mean = 4.62); “Develop a high degree of skill in the use of basic tools for your trade” (mean = 4.55); “Develop in students an interest towards trade or craft oriented work” (mean = 4.49); “Provide career education to assist students in making informed and meaningful occupational choices” (mean = 4.45) and “Prepare students for enrollment in highly skilled post secondary school technical education programs” (mean = 4.43).

Two of the highest rated five items were of a technical nature and three were of a general nature. In addition, three of these highest rated items were in the interpretive category of “Strongly Emphasized” (4.5 and above) and two were in the “Emphasized” category (3.5 to 4.49). Overall, the total group of technical education professionals rated eighteen of the twenty items in the “Emphasized” category and two items in the “Strongly Emphasized” category (Table 17).

Table 17

Ideal Emphasis on Purposes of Technical Education as Perceived by all Technical Education Professionals

<table>
<thead>
<tr>
<th>Rank Order</th>
<th>Item Type</th>
<th>Purposes of Technical Education</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8 (T)</td>
<td>Develop technical skills to a degree where the students are self-reliant</td>
<td>4.622</td>
<td>.739</td>
</tr>
<tr>
<td>2</td>
<td>3 (T)</td>
<td>Develop a high degree of skill in the use of basic tools for your trade</td>
<td>4.550</td>
<td>.764</td>
</tr>
<tr>
<td>3</td>
<td>15(G)</td>
<td>Develop in students an interest towards trade or craft oriented work</td>
<td>4.491</td>
<td>.775</td>
</tr>
</tbody>
</table>

(table cont’d)
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>11(G) Provide career education to assist students in making informed and meaningful occupational choices</td>
<td>4.452</td>
</tr>
<tr>
<td>5</td>
<td>10(T) Prepare students for enrollment in highly skilled post secondary school technical education programs</td>
<td>4.427</td>
</tr>
<tr>
<td>6</td>
<td>1 (T) Develop manipulative skills for the purpose of fitting persons in specific industries.</td>
<td>4.385</td>
</tr>
<tr>
<td>7</td>
<td>5 (T) Develop safety skills related to a specific occupation</td>
<td>4.372</td>
</tr>
<tr>
<td>8</td>
<td>16(G) Develop general problem solving skills related to job situations</td>
<td>4.336</td>
</tr>
<tr>
<td>9</td>
<td>13(G) Develop human relation skills that will enable students to work cooperatively with others in various fields</td>
<td>4.331</td>
</tr>
<tr>
<td>10</td>
<td>9 (T) Develop highly specialized technical skills necessary for the production of precise finished products</td>
<td>4.263</td>
</tr>
<tr>
<td>11</td>
<td>6 (T) Develop specific employment skills needed to enter a particular occupational field</td>
<td>4.262</td>
</tr>
<tr>
<td>12</td>
<td>14(G) Develop technical skills of a general nature such as measuring, planning, drawing etc</td>
<td>4.257</td>
</tr>
<tr>
<td>13</td>
<td>20(G) Provide basic theoretical knowledge on key materials commonly used in Zimbabwean industries</td>
<td>4.174</td>
</tr>
<tr>
<td>14</td>
<td>19(G) Provide consumer knowledge that enables students to be wise consumers of industrial products</td>
<td>4.118</td>
</tr>
<tr>
<td>15</td>
<td>7 (T) Provide exploratory experiences related to current practices in a specific business or industry</td>
<td>4.105</td>
</tr>
<tr>
<td>16</td>
<td>12(G) Provide opportunities for the application of science and mathematics concepts in the technical fields</td>
<td>4.099</td>
</tr>
<tr>
<td>17</td>
<td>4 (T) Develop technical expertise in the operation of power driven machines used in related industries</td>
<td>4.089</td>
</tr>
<tr>
<td>18</td>
<td>17(G) Provide occupational information pertaining to a broad range of occupations</td>
<td>4.002</td>
</tr>
</tbody>
</table>

(table cont’d)
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Score 1</th>
<th>Score 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Develop in students basic home skills useful in the home or leisure use</td>
<td>3.991</td>
<td>1.095</td>
</tr>
<tr>
<td>20</td>
<td>Develop general technical skills applicable to various occupational clusters</td>
<td>3.911</td>
<td>.957</td>
</tr>
</tbody>
</table>

*(G) = General education item, (T) = Technical education item;
Response scale: 5 = Strongly emphasized; 4 = Emphasized; 3 = Somewhat/moderately emphasized; 2 = Slightly emphasized; 1 = Not emphasized.

In section two of the instrument, (number 21) respondents were asked to indicate other purposes they perceived to be ideal for the secondary school technical education program. Not all technical education processional responded to this question. But, based on the themes that emerged from the responses, “the development of business organization skills” was considered by most responding professionals (35) to be ideal for the technical education program. The additional purpose identified by the next largest number of respondents was computer skills (19) and the self employment skills were identified by 16 respondents.

**Objective Four**

**Current Focus of the Technical Education Program**

Objective four of the study determined for each group of technical education professionals, their overall perceptions of the focus of the program as it CURRENTLY operates at the Ordinary level. Focus in this study was operationally defined as the degree of emphasis given to technical education program purposes and general education program purposes. This focus score was computed by assigning the following values for each of the two major groups of program purpose statements: For technical program purposes, “strongly emphasized = 5,” “emphasized = 4,” “moderately emphasized = 3,” “slightly/somewhat emphasized = 2,” and “not emphasized = 1.” For the general
education program purpose statements: "strongly emphasized = 1," "emphasized = 2," "moderately emphasized = 3," "slightly/somewhat emphasized = 4," and "not emphasized = 5." Therefore, possible scores ranged from a minimum value of 20 to a maximum value of 100; and scores greater than 60 indicated an overall emphasis on the technical education purposes while a score of less than 60 indicated an overall emphasis on the general education program purposes. A score of exactly 60 would be indicative of an equal focus on the general and technical education program purposes. It should be noted that in computing the focus scores, if a subject was missing data on any of the included items, a focus score was not calculated for that individual. Therefore, group sizes (n's) were somewhat down on this variable.

The education officers had the highest focus score (mean = 60.32, SD = 6.84) showing a more technical emphasis. The teacher educators had the second highest focus score (mean = 59.87, SD = 4.56). The technical subject teachers had the lowest focus score (mean = 59.59, SD = 4.83). Two of the computed overall focus scores, that for the teacher educators and technical teachers were below 60, indicating a slight emphasis toward general education. The mean current focus score for the entire group of technical education professionals was below 60 (mean = 59.67, SD = 5.03), (see Table 18).

Comments received by the researcher from the informal interactions with the technical education professionals support the apparent lack of clarity of purpose of the technical education program, in the focus scores. Some of the comments from the professionals were:
1. "The syllabus should make it clear whether we are teaching students vocational education or technical education."

2. "The home economics syllabus is the same syllabus, in terms of the content that I went through in the F2 program. What keeps changing are the dates printed on the front of the syllabus."

3. "Currently students are taught to pass the examinations and not skills to sustain themselves in the world of work. You must know that a good teacher is judged by his/her ability to produce a lot of passes at ordinary level."

4. "The syllabus is too long. At the end of every year I have some sections that I do not cover because I don’t have the time. Often we (technical teachers) race against time to finish all the topics outlined in the syllabus. In the process, I (we) do not give students a lot of the skill training they need."

5. "There is a mismatch between what is supposed to be taught and the teaching resources. The school does not give me adequate teaching material. The headmaster knows that I have one lathe working. I am tired of reminding him of the broken tools and machines since he does nothing about it."

6. "Right now in secondary school, general skills are provided instead of vocational education."

7. "I have a problem with the way my school assigns students to do technical subjects. I am given the less able students to teach my technical subject, that is, those who don’t do business subjects like management and economics. Yet, I am supposed to teach the students to a level where they have managerial skills to start
or manage their own business. There is a contradiction here and I don't know what the Ministry has in mind.”

8. “The Ministry [of Education] wants a technical skill focus, but is aware that most schools have one machine/lathe and broken equipment. How and what marketable skills do they expect us to teach?”

9. “If I found a teacher emphasizing technical skills or general education, I would not question him or her because there is no circular from the Ministry stipulating what exactly should be done.” Commenting on the lack of policy documents, one headmaster said, “right now I do not have any document or circular from the Ministry stating what my technical teachers should be doing.”

10. “The economic situation in the country seems to dictate what we can do in technical subjects. Without adequate supplies, we tend to do less of the skills and more of the theory . . . although this is not what we consider to be ideal.”

Table 18

<table>
<thead>
<tr>
<th>Professional Group</th>
<th>Current Score</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Teachers (n = 337)</td>
<td>59.59</td>
<td>4.83</td>
</tr>
<tr>
<td>Teacher Educators (n =16)</td>
<td>59.87</td>
<td>4.56</td>
</tr>
<tr>
<td>Education Officers (n = 37)</td>
<td>60.32</td>
<td>6.84</td>
</tr>
<tr>
<td>All Professionals (n = 390)</td>
<td>59.67</td>
<td>5.03</td>
</tr>
</tbody>
</table>

* >60 technical focus; <60 general education focus; 60 equal technical and general education focus.
Objective Five

Ideal Focus of the Technical Education Program

Objective five of this study determined for each group of technical education professionals, the focus of their program as it should IDEALLY operate at the Ordinary level. The same method of calculating the focus score as described in objective five was used in this objective. As applied to the calculation of the previous focus score, if a subject was missing data on any of the included items, a focus score was not calculated for that individual. Therefore, group sizes were somewhat down on this variable.

Teacher educators had the highest ideal focus score (mean = 61.19, SD = 4.49), indicating a more technical focus. The technical teachers also had a mean ideal focus score above 60 (mean = 61.02, SD = 4.33). The education officers had the lowest focus score (mean = 59.81, SD = 5.88). The mean ideal focus scores for the teacher educators and technical teachers were above 60 (mean = 61.19, and mean = 61.02, respectively) while that for the education officers was below 60 (mean = 59.81). The overall mean ideal focus score for the entire group of technical education professionals was above 60 (mean = 60.92, SD = 4.50), (see Table 19).

For the ideal focus of the technical education program, the informal interactions indicate slanting the program in the technical direction. Comments from some of the technical education professionals include:

1. “The curriculum should be changed to reflect the needs of today and prepare students for both formal and informal sectors.”

2. “The first problem we have is in naming the program ‘technical/vocational’ implying that we are not sure of what it is or should be.”
3. "The curriculum we used to teach in the F2 [crafts] secondary schools is what we should be teaching our students because it prepared students for industry. That is the curriculum we want."

4. "You guys had it in the F2 [crafts] program and at a time when your industry was getting to accept graduates from your program, you phased it out. In fact the current technical education program shows confusion in the Ministry at its height. The policy makers are ignorant of what they want or is ideal and practical in schools," commented one headmaster.

5. "In home economics, pupils concentrate on western dishes at the expense of traditional dishes. This practice may be appropriate for urban pupils but certainly inappropriate for pupils in rural areas. For instance, why should they be taught how to cook spaghetti in the rural areas, when spaghetti is not even something in the local shops."

6. "Schools lack the modern technology that will prepare the students to be self-reliant or self sustain themselves."

Table 19

Ideal Focus Scores for the Groups of Technical Education Professionals

<table>
<thead>
<tr>
<th>Professional Group</th>
<th>Ideal Score</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Teachers (n = 348)</td>
<td>61.02</td>
<td>4.33</td>
</tr>
<tr>
<td>Teacher Educators (n = 16)</td>
<td>61.19</td>
<td>4.49</td>
</tr>
<tr>
<td>Education Officers (n = 36)</td>
<td>59.81</td>
<td>5.88</td>
</tr>
<tr>
<td>All Professionals (n = 400)</td>
<td>60.92</td>
<td>4.50</td>
</tr>
</tbody>
</table>

* >60 technical focus; <60 general education focus; 60 equal technical and general education focus.
Objectives Six and Seven

Comparisons of Focus Scores

Objectives six and seven of this study compared the CURRENT focus scores and IDEAL focus scores of the three different groups of technical education professionals. Data were analyzed to see if there were differences in focus scores by the groups of technical education professionals (technical teachers, teacher educators, and education officers). The one-way analysis of variance test was used for this comparison. Results of the ANOVA showed no significant differences among the groups of technical education professionals in either of the two focus scores (current and ideal) (Tables 20 and 21).

Table 20

Analysis of Variance of Current Focus Scores by Groups of Technical Education Professionals

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>2</td>
<td>18.64</td>
<td>9.32</td>
<td>.367</td>
<td>.693</td>
</tr>
<tr>
<td>Within groups</td>
<td>387</td>
<td>9839.35</td>
<td>25.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>389</td>
<td>9857.99</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
*Group means were: teachers = 59.59, teacher educators = 59.87, officers = 60.32

Table 21

Analysis of Variance of Ideal Focus Scores by Groups of Technical Education Professionals

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>49.55</td>
<td>24.77</td>
<td>1.23</td>
<td>.295</td>
</tr>
<tr>
<td>Within Groups</td>
<td>397</td>
<td>8031.89</td>
<td>23.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>399</td>
<td>8081.44</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
*Group means were: teachers = 61.02, teacher educators = 61.19, officers = 59.81

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Objective Eight

Comparisons of Current and Ideal Focus Scores by Groups

Objective eight compared the CURRENT focus score with the IDEAL focus score for each group of technical education professionals. For each of the professional groups, (technical teachers, teacher educators, and education officers) the computed current and ideal focus scores were compared using the t-test procedure.

The technical teachers had a mean current focus score of 59.67 (standard deviation = 4.90) and a mean ideal focus score of 60.52 (standard deviation = 4.63). Results of the t-test showed the current focus score and ideal focus score for the technical teachers were significantly different ($t = -4.33$, $p < .001$) (see Table 22). The difference was such that the ideal focus score was higher than the current score indicating that the teachers perceived that the ideal focus of the programs should be more technical in nature than the current focus of the program. However, it should be noted that even though a statistically significant difference was found, the actual difference in means (1.43) was very low when considering the scale on which the variables were measured. The focus scores were measured on a 20 to 100 scale.

For the teacher educators, the mean current score of 59.91 (standard deviation = 6.82) and the mean ideal focus score of 59.44 (standard deviation = 5.80) were compared. Results of the t-test, (Table 20) showed that the current focus score and ideal focus score for the technical teachers were not significantly different ($t = .32$, $p = .75$).

The education officers had a mean current focus score of 59.88 (standard deviation = 4.56) and an ideal focus score of 61.19 (standard deviation = 4.49). Results of the t-test showed that the current focus score and ideal focus score for the technical teachers were
not significantly different \( (t = -0.76, \ p = 0.461) \). Although the results were not significant, it should be noted that the sample for the education officers was less than 30 \( (n = 16) \), (see Table 22).

**Table 22**

**Comparison of Current and Ideal Focus Scores by Professional Groups**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>( t )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technical Teachers</strong> ( (n = 304) )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Score</td>
<td>59.67</td>
<td>4.90</td>
<td>-4.33</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Ideal Score</td>
<td>60.52</td>
<td>4.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Teacher Educators</strong> ( (n = 34) )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current score</td>
<td>59.91</td>
<td>6.82</td>
<td>.32</td>
<td>.75</td>
</tr>
<tr>
<td>Ideal score</td>
<td>59.44</td>
<td>5.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Education Officers</strong> ( (n = 16) )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current score</td>
<td>59.88</td>
<td>4.56</td>
<td>-0.76</td>
<td>.461</td>
</tr>
<tr>
<td>Ideal score</td>
<td>61.19</td>
<td>4.49</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Objective Nine**

Objective nine of this study was to determine if a relationship existed between the **CURRENT** and **IDEAL** focus scores and each of the following demographic characteristics; gender, age level, educational qualifications, as measured by highest professional education completed, the institution where the professional qualifications were obtained as measured by technical college, teacher training college or university; the major technical subject(s) studied at a tertiary institution; the main technical subject(s) taught in school; the other school level at which the professionals teach or taught the technical subject(s), as measured by ZJC, “O” level, teachers college, technical college or
university; years of teaching experience; type of school as measured by government, mission or private, and geographic location of school as measured by urban or suburban.

**Relationship Between Focus Scores and Personal Characteristics**

For variables that were measured on an ordinal scale of measurement, the Kendall’s Tau correlation coefficient was used to measure the relationship between the demographics and each of the two focus scores (current and ideal). These variables include the age level of respondents, the highest level of education completed by respondents, the school level at which the respondents teach or had taught other than their current position, and their number of years of teaching experience.

For interpretation of correlation coefficients, Davis’ proposed set of descriptors were used (Davis, 1971). The coefficients and their descriptors are as follows:

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>.70 or higher</td>
<td>very strong association</td>
</tr>
<tr>
<td>.50 to .69</td>
<td>substantial association</td>
</tr>
<tr>
<td>.30 to .49</td>
<td>moderate association</td>
</tr>
<tr>
<td>.10 to .29</td>
<td>low association</td>
</tr>
<tr>
<td>.01 to .09</td>
<td>negligible association</td>
</tr>
</tbody>
</table>

When the correlations between each of these demographic characteristics and the current and ideal scores were examined, no significant coefficients were found. The largest coefficient calculated was $r = .08$ between the variable, other school level where the respondent teaches or had taught and the ideal focus score. However, the reader should be cautioned that even though this correlation coefficient was statistically significant, there is very little substantive value in a coefficient of this low magnitude.
using Davis' descriptors of the magnitude of correlation coefficients, the relationship would be classified as negligible, which is probably a more accurate assessment of a correlation of this size. The correlation was classified using Davis' descriptors as negligible and was statistically significant (Table 23).

Table 23

<table>
<thead>
<tr>
<th>Relationship Between Focus Scores and Selected 'Ordinal' Demographic Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Focus Score</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Age Level</td>
</tr>
<tr>
<td>Education</td>
</tr>
<tr>
<td>Other Level*</td>
</tr>
<tr>
<td>Teaching Experience</td>
</tr>
</tbody>
</table>

Note. Relationships were measured using Kendall's Tau Correlation Coefficient.
* School levels other than what one mainly teaches or taught, these include: primary school, ZJC, "O" level, "A" level, teachers college, technical college and university.

Variables which were measured on a nominal scale of measurement were first converted in one of two ways to facilitate the determination of the presence of relationships between the variable and the current and ideal focus scores. These conversions involved either creating dichotomous variables for each possible category of a variable that included several nominal categories or collapsing categories, where appropriate, to create dichotomous variables. After these conversions were accomplished, the Point Biserial correlation coefficient or the Biserial correlation coefficient, as appropriate, was used to measure the relationship between each of the demographics and the current and ideal focus scores.
Variables for which a series of dichotomous variables were created for each of the categories of the original variable were the major technical subject studied at the tertiary institution and the major subject taught in school. For each of the possible response categories in each of these two variables, a variable was created that was indicative that each respondent either reported that category or did not report that category. For example, for the Building Studies subject having been studied at the tertiary institution, each respondent was classified as either having studied the Building Studies area or not. The same was done for each of the other five areas in the variable major technical area studied. This yielded six dichotomous variables for each of the variables “Subject Studied” and “Subject Taught.” Each of these dichotomous variable were then correlated with the current and ideal focus scores to determine if relationships existed to accomplish the study objective.

The correlation between each of the nominal variables and the current and ideal scores were examined. Significant correlations were found between the current focus score and the following five demographic variables: 1) whether or not one taught or had taught Technical Graphics ($r = -0.18$, $p < 0.001$); 2) whether or not one taught or had taught Fashion and Fabrics ($r = 0.12$, $p = 0.02$); 3) whether or not one majored in Technical Graphics ($r = -0.16$, $p = 0.002$); 4) whether or not one majored in Food and Nutrition ($r = 0.15$, $p = 0.002$), and 5) whether or not one majored in Fashion and Fabrics ($r = 0.13$, $p = 0.012$).

Three of the correlations were positive indicating that having taught or majored in the specified fields (food and nutrition, and fashion and fabrics) tended to be associated with higher focus score (or more technical scores). The other correlations were negative.
indicating that those professionals who taught/had taught or majored in technical graphics tended to be associated with lower or more general education scores. Even though these five coefficients were statistically significant, caution should be exercised in interpreting the practical value of correlations with the magnitudes of these coefficients. Using Davis’ descriptors all of the significant correlations were classified as “Low,” and even the highest of them (r = -.18) would explain only 3.2% of the variability in the respondents’ focus scores. Therefore, from a substantive perspective, the relationships found would provide very little benefit to practitioners in the field.

For the relationship of nominal variables with the ideal focus score, the following four variables were significant; 1) whether or not one majored in Food and Nutrition (r = .13, p = .01); 2) whether or not one taught Food and Nutrition (r = .12, p = .02) and 3) whether or not one majored in Building Studies (r = -.12, p = .02); and 4) whether or not one taught Building Studies (r = -.12, p = .02). Two correlations were positive indicating that having taught or majored in Food and Nutrition tended to be associated with higher scores (i.e. more technical focus). On the other hand, two correlations were negative indicating that having taught or majored in Building Studies tended to be associated with lower scores (more general focus).

As with the previous coefficients, caution should be exercised in interpreting the practical value of correlations with such magnitudes. The four correlations were classified using Davis’ descriptors as “low” association and even the highest of them (r = .13) would explain only 1.7% of the variability in the respondents’ focus score. Therefore, the relationships found would provide very little substantive value to the practitioners in the
field. Table 24, presents the relationship between the focus scores (current and ideal) and the “subject taught,” and “subjects studied.”

Table 24

Relationship Between Focus Scores and Nominal Demographics Characteristics

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Current Focus Score</th>
<th></th>
<th>Ideal Focus Score</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
<td>p</td>
<td>r</td>
<td>p</td>
</tr>
<tr>
<td>Technical Graphics (T)</td>
<td>-.18</td>
<td>.001</td>
<td>-.04</td>
<td>.46</td>
</tr>
<tr>
<td>Technical Graphics (M)</td>
<td>-.16</td>
<td>.002</td>
<td>-.09</td>
<td>.08</td>
</tr>
<tr>
<td>Food and Nutrition (M)</td>
<td>.15</td>
<td>.002</td>
<td>.13</td>
<td>.01</td>
</tr>
<tr>
<td>Fashion and Fabrics (M)</td>
<td>.13</td>
<td>.012</td>
<td>.06</td>
<td>.24</td>
</tr>
<tr>
<td>Fashion and Fabrics (T)</td>
<td>.12</td>
<td>.02</td>
<td>.08</td>
<td>.13</td>
</tr>
<tr>
<td>Food and Nutrition (T)</td>
<td>.09</td>
<td>.08</td>
<td>.12</td>
<td>.02</td>
</tr>
<tr>
<td>Metalwork (T)</td>
<td>-.04</td>
<td>.46</td>
<td>-.09</td>
<td>.09</td>
</tr>
<tr>
<td>Building Studies (M)</td>
<td>-.04</td>
<td>.45</td>
<td>-.12</td>
<td>.02</td>
</tr>
<tr>
<td>Woodwork (M)</td>
<td>.01</td>
<td>.82</td>
<td>-.01</td>
<td>.83</td>
</tr>
<tr>
<td>Metalwork (M)</td>
<td>-.02</td>
<td>.68</td>
<td>-.01</td>
<td>.73</td>
</tr>
<tr>
<td>Building Studies (T)</td>
<td>-.03</td>
<td>.57</td>
<td>-.12</td>
<td>.02</td>
</tr>
<tr>
<td>Woodwork (T)</td>
<td>-.01</td>
<td>.95</td>
<td>.03</td>
<td>.55</td>
</tr>
</tbody>
</table>

* (T) = whether or not one taught the technical subject
* (M) = whether or not one majored in the technical subject

Other variables which were converted using the procedure which involved collapsing categories included institution where their professional qualifications were obtained, and type of school, measured as the organization who owns and manages the school. The collapsing of these categories was done based the following rationale. For
the variable institution where professional qualifications were obtained, the teachers college and university were combined into one category. The second category was technical colleges. The rationale for this combination is that in Zimbabwe, the teachers colleges and universities do not have as much skill training or technical emphasis when compared to the technical colleges and are therefore considered to be equal in terms of program focus. Therefore, the variable was converted from a three level variable to a more appropriate dichotomous variable.

Regarding the variable type of school as measured by the authority who owns and manages the school, the three levels were government, church and private. Essentially the church and private schools are all private schools, therefore the rationale for combining levels here was to combine the church and private into one level labeled private schools. The dichotomous variable created was then government or private schools. These variables were then correlated with the current and ideal focus scores using the Biserial Correlation Coefficient.

When the correlations between the institution where professional qualifications were obtained and responsible authority were examined, institution had a statistically significant relationship with current focus score \( (r = -.07, p = .05) \). The correlation between these variables was negative indicating that teachers who obtained their professional qualifications at a technical college tended to have higher or more technical current focus scores. Again, the reader should be cautioned that even though the correlation between the current focus score and the institution where professionals obtained professional qualifications was the largest and significant, there is very little
substantive value in a coefficient of such a low magnitude. The relationship according to Davis' descriptors of the magnitude of correlation coefficients would be classified as "negligible," which is probably a more accurate assessment of a correlation of this size (see Table 25).

**Table 25**

**Relationship Between Focus Scores and Dichotomous Demographic Characteristics**

<table>
<thead>
<tr>
<th></th>
<th>Current Focus Score</th>
<th>Ideal Focus Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( r )</td>
<td>( p )</td>
</tr>
<tr>
<td>Institution*</td>
<td>-.07</td>
<td>.05</td>
</tr>
<tr>
<td>Responsible authority^b</td>
<td>.06</td>
<td>.30</td>
</tr>
</tbody>
</table>

* whether or not the institution where one studied was a college or university  
^b whether or not the school is private or owned by government.

The other two nominal variables for which relationships were examined with the current and ideal focus scores were gender of respondent and geographic location of the school in which they were currently teaching. Both of these variables were already measured as dichotomous variables (gender was male or female, and geographic location was urban or suburban). Therefore, the correlation coefficient used to measure these relationships was the Point Biserial correlation coefficient.

The relationship between current and ideal focus scores and the two demographic variables, gender and location, showed a statistically significant correlation between gender and the current focus score, and between gender and the ideal focus score (\( r = -.13, p = .01 \), and \( r = -.10, p = .04 \) respectively). A significant correlation was also found between the ideal focus score and location (\( r = .13, p = .02 \)). The negative correlation indicates that females (coded 1) tended to have higher current focus scores. The positive
correlation indicates that technical teachers at urban secondary schools (coded 1) tended to have lower focus scores.

As with the previous correlations coefficients, caution should be exercised in interpreting the practical value of correlations with such low magnitudes. Using Davis’ descriptors, the three significant correlations were classified as “low,” and even the highest of them (r = .13) would explain only 1.7% of the variability in the respondents’ focus scores. Therefore, from a substantive point of view, the relationships found would provide very little benefit to practitioners in the field. Table 26 presents the relationship between focus scores and the demographic characteristics gender, and school location.

Table 26

Relationship Between Focus Scores and Demographic Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Current Focus Score</th>
<th></th>
<th>Ideal Focus Score</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
<td>p</td>
<td>r</td>
<td>p</td>
</tr>
<tr>
<td>Gender</td>
<td>-.13</td>
<td>.01</td>
<td>-.10</td>
<td>.04</td>
</tr>
<tr>
<td>Location*</td>
<td>-.06</td>
<td>.30</td>
<td>.13</td>
<td>.02</td>
</tr>
</tbody>
</table>

* whether urban or suburban

Objective Ten

Objective ten was to determine if a model existed which explained a significant portion of the variance in each of the CURRENT and IDEAL focus scores regarding the purposes of technical education programs at the Ordinary level in Zimbabwe, from the following professional and demographic variables: job classification, educational level completed, years of teaching experience, main technical subject taught in school, the other school level at which the professionals teach or have taught technical subjects, and the institution where professional qualification was obtained.
This objective was accomplished using multiple regression analyses with current and ideal scores as dependent variables. The other variables were treated as independent variables and the full model entry of the variables was used. Data presented in Tables 27 and Table 28 show explained variance as well as the standardized and unstandardized regression coefficients to estimate the relative importance of each variable.

In analyzing the data, three variables were constructed from the data. The variable main technical subject taught was collapsed into three “yes” or “no” variables. The first of these was whether or not the respondent teaches or had taught in the trades area. For instance, if a technical education professional indicated teaching Building Studies, Metalwork or Woodwork or a combination of the three technical subjects, the response was interpreted to mean that they taught in the ‘Trades Area’ and this was coded “1.” If a technical education professional indicated that they teach or had taught other technical subjects not Building Studies, or Woodwork and/or Metalwork, this was coded as “0.”

The second group was for respondents who teach or had taught in the area of home economics, that is, if they indicated teaching Fashion and Fabrics, and Food and Nutrition or a combination of the two technical subjects, this was coded as “1.” If a technical education professional indicated that they teach or had taught other technical subjects not Fashion and Fabrics, and/or Food and Nutrition, this was coded as “0.”

The third group of main technical subjects taught was for technical education professionals who teach or had taught in the area of technical graphics. If a respondent indicated teaching Technical Graphics, this was coded as “1.” If a professional indicated that they teach or had taught other technical subjects not Technical Graphics, this was coded as “0.”
For the variable job classification, dummy coding was used to construct two "yes" or "no" variables. The two variables created were 1) whether or not respondents were technical teachers, and 2) whether or not respondents were teacher educators. Other variables were converted as described in the previous objective, by collapsing categories.

The variable years of teaching experience was measured at an ordinal level. This was coded as it appears on the questionnaire. For the variable institution, three variables were created: whether or not the professional had attended a teachers college, 2) whether or not the professional had attended a technical college, and 3) whether or not the professional had attended a university. Since these three variables in combination would be perfectly collinear, two of these variables were entered into the regression analysis.

The two variables entered were: teachers college and technical college. For the variable education level, a variable was created which had two levels; diploma and masters degree. These levels were then coded as diploma in education "1" and masters degree "0." Similar treatment was done to the variable, other level. Two variables secondary and university were created from collapsing the various school levels.

Regression Analysis with Current Focus Score

The full model entry of the variables was used for the regression analysis with current focus score. The twelve variables entered into the regression model had a multiple R value of 0.376 with a corresponding R² of 0.141. This model was statistically significant (F₁₂,₂₉₉ = 4.02, p = .001). The t-values were examined to determine the individual contribution of variables in the model to the overall significance of the model. Only one of the variables (whether or not the professional had a masters degree) was
found to make a statistically significant contribution to the model. In addition, the standardized coefficients (Betas) were examined to assess the relative importance of variables to the overall model. The four variables which had the highest relative importance in the model were: whether or not the professionals had attended a teacher's college (Beta = .42), whether or not the professional had studied the area of technical graphics (Beta = -.25), whether or not the professional had attended a technical college (Beta = .23), and whether or not the professional had completed a diploma in education (Beta = -.21) (see Table 27).

Table 27

**Multiple Regression Analysis of Current Focus Score**

(n = 306).

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>MS</th>
<th>F-ratio</th>
<th>F-prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>12</td>
<td>89.65</td>
<td>4.02</td>
<td>0.001</td>
</tr>
<tr>
<td>Residual</td>
<td>293</td>
<td>22.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>305</td>
<td>111.97</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables in the equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>Technical College a</td>
</tr>
<tr>
<td>Area &quot;Graphics&quot; b</td>
</tr>
<tr>
<td>MS Degree c</td>
</tr>
<tr>
<td>Secondary School d</td>
</tr>
</tbody>
</table>

(table cont’d)
Regression Analysis with Ideal Focus Score

The twelve variables entered into the ideal focus score regression model had a multiple R value of 0.365 with corresponding R² of 0.133. This model was statistically significant (F₁₂,₂₉₉ = 3.83, p = .001). The t-values were examined to determine the individual contribution of variables in the model to the overall significance of the model.

Three variables, whether or not the professional had a masters degree, years of teaching experience, and whether or not one teaches or had taught technical graphics, were found to be significant contributors to the model.
experience, and whether or not the professional had attended a teacher’s college were found to make a statistically significant contribution to the model. In addition, the Betas (standardized coefficients) were examined to assess the relative importance of variables to the overall model. All three of the highest standardized coefficients were for items reflecting program areas (trades, home economics, and technical graphics) (Table 28).

Table 28

**Multiple Regression Analysis of Ideal Focus Score**

(n = 312).

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>MS</th>
<th>F-ratio</th>
<th>F-prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>12</td>
<td>64.77</td>
<td>3.83</td>
<td>0.001</td>
</tr>
<tr>
<td>Residual</td>
<td>299</td>
<td>16.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>311</td>
<td>81.70</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Variables in the equation**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t-ratio</th>
<th>Sig. t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical College a</td>
<td>-2.094</td>
<td>-0.162</td>
<td>-1.285</td>
<td>0.200</td>
</tr>
<tr>
<td>Area “Graphics” b</td>
<td>-6.802</td>
<td>-0.526</td>
<td>-1.536</td>
<td>0.126</td>
</tr>
<tr>
<td>Masters Degree c</td>
<td>4.661</td>
<td>0.170</td>
<td>2.810</td>
<td>0.005 *</td>
</tr>
<tr>
<td>Secondary School d</td>
<td>0.743</td>
<td>0.060</td>
<td>0.781</td>
<td>0.435</td>
</tr>
<tr>
<td>Teaching Experience e</td>
<td>0.687</td>
<td>0.131</td>
<td>2.127</td>
<td>0.034 *</td>
</tr>
<tr>
<td>Area “H/Economics” f</td>
<td>-5.234</td>
<td>-0.595</td>
<td>-1.200</td>
<td>0.231</td>
</tr>
<tr>
<td>Diploma in Education g</td>
<td>2.702</td>
<td>0.272</td>
<td>1.790</td>
<td>0.074</td>
</tr>
</tbody>
</table>

(table cont’d)
<table>
<thead>
<tr>
<th></th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Lecturer</td>
<td>-2.990</td>
<td>-0.191</td>
<td>-1.691</td>
<td>0.092</td>
</tr>
<tr>
<td>College</td>
<td>2.784</td>
<td>0.158</td>
<td>2.136</td>
<td>0.034</td>
</tr>
<tr>
<td>Technical Teacher</td>
<td>-0.557</td>
<td>-0.040</td>
<td>-0.349</td>
<td>0.727</td>
</tr>
<tr>
<td>Teachers College</td>
<td>-1.275</td>
<td>-0.141</td>
<td>-0.853</td>
<td>0.394</td>
</tr>
<tr>
<td>Area “Trades”</td>
<td>-6.557</td>
<td>-0.755</td>
<td>-1.505</td>
<td>0.133</td>
</tr>
</tbody>
</table>

**Note.** Multiple R = 0.365, R² = 0.1331, constant = 13.58.

* Significant contributor to the model

b is defined as whether or not the professional attended a technical college
c is defined as whether or not one teaches or had taught technical graphics
d is defined as whether or not the professional had a masters degree
e is defined as whether or not one teaches or had taught technical graphics
f is defined as whether or not one teaches/taught fashion and fabrics and/or food and nutrition
g is defined as whether or not one completed diploma in education
h is teacher educator
i is third ‘other’ school level, above secondary school
j is technical teacher
k is defined as whether or not the professional attended a teachers college
l is defined as whether or not one teaches or had taught building studies, woodwork, or metalwork or a combination of the three technical subjects.
CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of the study was to determine the CURRENT focus and IDEAL focus of the technical education program at the secondary school level in Zimbabwe, as perceived by the technical education professionals. Specifically this study was intended to:

1. Describe the three different groups of technical education professionals in Zimbabwe (defined as secondary school technical teachers, technical teacher educators, and education officers for technical subjects, in the Ministry of Education) in terms of the following selected demographics:
   a. job classification
   b. gender
   c. age level
   d. educational qualifications
   e. institution where professional qualification was obtained
   f. major technical subject(s) studied at tertiary institution
   g. main technical subject(s) taught in school
   h. the other school level at which the professionals teach or have taught technical subject(s)
   i. years of teaching experience
j. For secondary school teachers, in addition to the above demographics identify the school's responsible authority and geographic location of the secondary schools, and

k. For education officers, describe their years of working experience as education officers.

2. Describe the degree of emphasis that is being placed on each of a series of stated technical educational program purposes at the Ordinary level as it CURRENTLY operates, as perceived by each of the three groups of technical education professionals.

3. Describe the degree of emphasis that should be placed on each of a series of stated technical educational program purposes at the Ordinary level as it should IDEALLY operate, as perceived by each of the three groups of technical education professionals.

4. Determine the focus of the program as it CURRENTLY operates at the Ordinary level for each group of technical education professionals.

5. Determine the focus of the program as it should IDEALLY operate at the Ordinary level for each group of technical education professionals.

6. Compare the CURRENT focus scores of the three different groups of technical education professionals.

7. Compare the IDEAL focus scores of the three groups of technical education professionals.
8. Compare the CURRENT focus score with the IDEAL focus score for each group of technical education professionals.

9. Determine if a relationship exists between the CURRENT and IDEAL focus scores and the following demographic characteristics:
   a. gender
   b. age level
   c. educational qualifications, as measured by highest professional education completed
   d. institution where professional qualification was obtained as measured by technical college, teacher training college and university;
   e. major technical subject(s) studied at tertiary institution;
   f. main technical subject(s) taught in school;
   g. the other school level at which the professionals teach or taught the technical subject(s), as measured by Zimbabwe Junior Certificate level, Ordinary level, teachers college, technical college and university
   h. years of teaching experience
   i. type of secondary school as measured by government or private, and
   j. geographic location of school as measured by urban and suburban

10. Determine if a model exists that explains a significant portion of the variance in each of the CURRENT and IDEAL focus scores regarding the purposes of technical education programs at the Ordinary level in Zimbabwe, from the following professional and demographic variables:
a. job classification
b. educational level completed
c. years of teaching experience
d. main technical subject(s) taught in school
e. the other school level at which the professionals teach or have taught the technical subject(s), and
f. institution where professional qualification was obtained.

The population for this study was all technical education professionals in Zimbabwe. The population was stratified into three sub-groups, technical teachers, teacher educators, and education officers for the Ministry of Education. A sample from each sub-group was chosen. Since Harare region was known to have: all technical subjects offered in the secondary school, reliable postal service, and accessibility; all the secondary school technical subject teachers in this region were sampled. For the teacher educators, all technical teacher educators from the three secondary school technical teacher colleges of Belvedere, Chinhoyi, and Gweru took part in the study. All the education officers for technical subjects, and home economics in Zimbabwe’s nine educational regions were part of the sample.

Since the sample was drawn exclusively from Harare region, and not randomly from the entire population, the researcher cannot claim representativeness of his sample. Therefore, the results of this study are limited to the secondary school technical subject teachers in Harare region, technical teacher educators from three teacher’s colleges (Belvedere, Chinhoyi, and Gweru) in Zimbabwe, and the sixteen education officers responsible for technical subjects at the secondary school level.
Data for this study were collected in Zimbabwe between June and July 1998. A three-part questionnaire was hand delivered to the technical teachers and teacher educators, and mailed to all education officers. The three sections of the questionnaire were personal background information section one; current focus, section two; and section three: ideal focus. With the exception of additional background information that was required from the technical teachers and teacher educators, sections two and three were identical on all questionnaires. Background information of the technical education professionals was determined using demographic questions in section one. The current and ideal focus of the program was measured in sections two and three, using 40 statements on the purposes of technical education. The respondents were asked to identify their perception of the degree of emphasis placed (currently and ideally) on selected purposes of technical education. This was done on a 5-point Likert-type scale which followed each statement.

Four hundred and fifty two questionnaires were collected from the technical education professionals - 397 technical teachers (a response rate in excess of 90%), 39 from teacher educators (response rate in excess of 90%), and 16 from education officers (88.9% response rate).

The following is a summary of the major findings of the study.

1. The technical education professionals had the following personal characteristics:
   a. The majority of the responding technical education professionals were technical teachers \( (n = 397, 87.8\%) \). The next largest group was the teacher educators, 8.6\% (39) and the smallest group was the education
officers (n = 16, 3.5%). Of the total sample, 234 (41.8%) were males and 218 (48.2%) were females.

b. The age category 26 to 35 had the majority of the technical education professionals (n = 245, 54.7%). The next largest group of technical education professionals were in the 36 to 45 age category (n = 131, 29.2%). One technical teacher was more than 55 years of age.

c. The largest group of technical teachers (n = 196, 49.4%) had Certificates in Education. The next largest group of teachers had a Diploma in Education (n = 111, 28.0%). Two technical teachers were untrained. About half of the teacher educators (n = 18, 47.4%) had bachelors degrees and twelve had either a diploma or certificate in education. A majority of education officers, (n = 15 or 93.8%) had bachelors’ degrees and only one had a masters degree. Other common qualifications held by technical education professionals included: National Certificates (NC) in hotel catering, food operations, and mechanical engineering; National Diplomas (ND), National Certificates in Education (NCE), and Advanced Craft and Artisan Certificates.

d. The majority of the technical education professionals (n = 272, 60.6 %) graduated from teachers colleges. The next largest groups graduated from a university (n = 90, 20%) and technical colleges (n = 85, 18.9%). All education officers graduated from a university.
e. All but two of the responding technical education professionals had studied a technical subject at a tertiary institution. The largest group of technical teachers studied Metalwork, (n = 76, 19.2%) and the next largest groups studied Fashion and Fabrics, and Woodwork (n = 70, 17.7%). Most teacher educators had studied Metalwork and a combination of Food and Nutrition and Fashion and Fabrics. Half of the education officers studied Building. Food and Nutrition was the technical subject with the least respondents (n = 30, 36%). Other professionals had studied a combination of food and nutrition and fashion and fabrics, and a combination of woodwork and metalwork. Most of the professionals in this group, 44 (11.1%) had studied a combination of food and nutrition and fashion and fabrics. Other non-conventional technical areas studied by the professionals included: human management, hotel catering, mechanical engineering, and a combination of joinery and cabinet making.

f. The largest group of technical teachers taught Fashion and Fabrics 21.6% (85). The next largest group taught metalwork (n = 73, 18.6%). Very few technical teachers taught two program areas. Of those who did teach multiple areas, common combinations of technical subjects taught by the professionals included: fashion and fabrics and food and nutrition; and woodwork and metalwork. None of the technical education professionals taught a combination of home economics and the trades courses (building
studies, woodwork, metalwork and technical graphics) or a combination of more than two trade courses.

g. The majority of technical education professionals, (75.5% or n = 314) also taught or had taught at the Zimbabwe Junior Certificate level the same technical subject(s) they taught at Ordinary level. The next largest group (n = 30, 7.2%) taught technical subjects at the Advanced level. An equal number of education officers had taught technical subjects at the ZJC and “O” level. No education officer had taught at either a technical, teachers college or university.

h. The largest group of technical teachers (54.7%) and teacher educators (48.7%) had between four and ten years teaching experience. About half of the education officers had worked for 11 to 17 years as education officers and another seven indicated a working experience of 18 years or more.

i. A majority of the secondary schools in Harare, (n = 351, 83.3%) were owned by the government. Twenty (5.1%) were owned by a church and 43 (10.9%) were private.

j. Two hundred and seventy seven technical teachers (70.5%) taught in urban secondary schools while 116 (29.6%) taught in suburban schools.

2. Based on the emphasis means, the five items rated highest by all technical education professionals on the current emphasis of the technical education program were “Develop in students an interest towards trade or craft oriented
work" (mean = 4.41); "Develop a high degree of skill in the use of basic tools for your trade" (mean = 4.37); "Develop technical skills of a general nature such as measuring, planning, drawing etc." (mean = 4.31); "Develop technical skills to a degree where the students are self-reliant" (mean = 4.13); and "Provide career education to assist students in making informed and meaningful occupational choices" (mean = 4.13).

Of these highest rated five items, three were general education items and two were technical education items. In addition, all the highest rated items were in the interpretive category of "Emphasized" (3.5 to 4.49). Overall, all the technical education professional rated the twenty items as follows; "Emphasized" (16) and "Somewhat Emphasized" (4).

3. Based on the emphasis means, the five items rated highest by all technical education professionals on the ideal emphasis of the technical education program were: "Develop technical skills to a degree where the students are self-reliant" (mean = 4.62); "Develop a high degree of skill in the use of basic tools for your trade" (mean = 4.55); "Develop in students an interest towards trade or craft oriented work" (mean = 4.49); "Provide career education to assist students in making informed and meaningful occupational choices" (mean = 4.45) and "Prepare students for enrollment in highly skilled post secondary school technical education programs" (mean = 4.43).

Two of the highest rated five items were of a technical nature and three were of a general nature. In addition, three of these highest rated items were in the
interpretive category “Strongly Emphasized” (4.5 and above) and two in the “Emphasized” category (3.5 to 4.49). Overall, all the technical education professionals rated 17 of the 20 items in the “Emphasized” category and three items in the “Strongly Emphasized” category.

4. The current focus scores for the respective groups of technical education professionals ranged from 60.32 to 59.59. Education officers had the highest current focus score (60.32), and teacher educators had the lowest current focus score (59.59). The mean current focus score for the entire group was below 60 (59.67).

Focus in this study was operationally defined as the degree of emphasis given to technical education program purposes and general education program purposes. The “general education focus,” places emphasis on teaching about the industry— the materials and processes used in local industries. The “technical education focus,” is job oriented and places emphasis on hands-on activities and proficiency in technical skills.

Possible scores range from a minimum value of 20 to a maximum value of 100; and scores greater than 60 indicated an overall emphasis on the technical education purposes while a score of less than 60 indicated an overall emphasis on the general education program purposes. A score of exactly 60 indicated an equal focus on the general and technical education program purposes.

5. The ideal focus scores for the three groups of technical education professionals ranged from 61.19 to 59.81. The teacher educators had the highest ideal focus.
score (61.19) and the education officers had the lowest ideal focus score (59.81).

The mean ideal focus score for the entire group of technical education professionals was above 60 (60.92).

6. A comparison of the groups of technical education professionals on their current focus scores yielded no significant differences ($F (df=2, 387) = .367, p = .69$).

7. No significant differences were found between groups of technical education professionals on their ideal focus scores ($F (df=2, 440) = 1.23, p = .30$).

8. Comparisons of the current focus score with the ideal focus score for each group of technical education professionals resulted in these findings:

   a. There were significant differences between the current focus score and ideal focus score for the technical teachers group ($t = -4.33, p < .001$).

      The current focus score for the technical teachers was less than 60 (59.67). The current focus score was lower than the ideal focus score (61.03).

      Even though the difference in focus scores is statistically significant, the reader is cautioned that actual difference between the two means (1.43) is very small considering that the focus scores were measured on a scale of 20 to 100.

   b. No significant differences were found between the current focus score and ideal focus scores for the teacher educators ($t = .32, p = .75$) and education officers ($t = .76, p = .46$).

9. The following relationships were found between focus scores and personal characteristics:
a. A statistical significant relationship was found between the ideal focus scores and the other school level at which the professionals teach technical subjects ($r = .08, p = .05$). Using Davis' descriptors of magnitude, this correlation was classified as "negligible," which is probably a more accurate assessment of a correlation of this size.

b. No significant correlations were found between the focus scores (current and ideal) and the following demographic variables: age level, highest education completed, and years of teaching experience.

c. Statistical significant relationships were found between the current and ideal focus scores and some demographic variables. Significant correlations were found between the current focus score and five demographic variables: teaching Technical Graphics ($r = -.18, p = <.001$), teaching Fashion and Fabrics ($r = .12, p = .02$), having studied Technical Graphics ($r = -.16, p = .002$), having studied Food and Nutrition ($r = .15, p = .002$), and having studied Fashion and Fabrics ($r = .13, p = .01$).

Statistically significant correlations were also found between the ideal focus score and the following: having majored/studied Food and Nutrition ($r = .13, p = .01$), teaching Food and Nutrition ($r = .12, p = .02$) and having studied/majored or taught Building Studies ($r = -.12, p = .02$). Since the four statistically significant correlations fell between .10 and .29, these were classified as low correlations according to Davis' descriptors,
and therefore caution should be exercised when interpreting the practical value of such relationships.

d. A statistically significant relationship was found between the current focus score and the institution where the professionals obtained professionals qualifications (\( r = -0.07, p = 0.05 \)). In terms of substantive significance, this correlation was negligible and therefore provides very little information of value to the practitioner. No statistically significant relationships were found between the schools' responsible authority and the focus scores, and between the ideal focus score and the institution where the professionals obtained professional qualification.

10. Exploratory models exist that explain a significant portion of the variance in the current focus score and ideal focus score from the demographic variables.

In the current focus score regression model, with current focus score as the dependent variable, the twelve variables entered in the model had a multiple R value of 0.376 with a corresponding \( R^2 \) of 0.141. Only one variable, whether or not the professional had a masters degree was found to make a statistically significant contribution to the model. Four variables which had the highest relative importance in the model where whether or not the professional had attended a teachers college (Beta = .42), whether or not the professional had studied Technical Graphics (Beta = -.25), whether or not the professional had attended a technical college (Beta = .23), and whether or not the professional had completed a diploma in education (Beta = -.21)
In the ideal focus score regression model, with ideal focus score as the dependent variable, the twelve variables entered in the model had a multiple R value of 0.365 with a corresponding R² of 0.133. Three variables were found to make a statistically significant contribution to the model. The three variables that made a significant contribution to the model were MS degree (whether or not the professional had a masters degree), years of teaching experience, and whether or not the professional attended a teacher’s college.

Conclusions and Recommendations

Based on the findings of this study, the following conclusions and recommendations were drawn by the researcher:

1. The current focus (i.e. general or technical) of the technical education program in Zimbabwe’s secondary schools is not clear.

   This conclusion is based on the following findings from this study. The current focus score for the respective groups of technical education professionals were between 59.59 and 60.32, and the mean for the entire group was 59.67. The mean current focus scores for the individual groups and the entire group indicates lack of a strength in either the general or technical area. Also, of the five current items rated highest by the technical education professionals, three were of a technical nature while two were of a general nature.

   In addition, the informal interactions with technical education professionals revealed lack of clarity on the current focus of the technical education program. “The syllabus should make it clear whether we are teaching students vocational education

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[technical skills] or technical education [general education],” commented one teacher.

While two technical teachers and one headmaster felt that teachers in Zimbabwe [technical subjects teachers included] “teach students to pass examinations,” one home economics teacher felt “the home economics syllabus is the same syllabus, in terms of content that [she] went through in the F2 program. What keeps changing are the dates.” In the teacher’s opinion, the technical education program is still craft-based, as was the case in the F2 program. However, one saw a different focus “right now in secondary school, general skills are provided instead of vocational education.” To show the shows lack of clarity in the technical education program in Zimbabwe, one headmaster commented:

You guys had it in the F2 [craft] program and at a time when the industry was getting to accept the graduates from your program, you phased it out. In fact the current technical education program, shows confusion in the ministry at its height. The policy makers are ignorant of what they want or is ideal, and practical in schools.

Similar findings where programs lack clarity were reported in an evaluation study by Lauglo (1985) on practical subjects in Kenyan academic secondary schools. The evaluation of the practical subjects program found the aims and objectives of Industrial Education (IE) fraught with ambiguity. The general aims defined IE as part of general education; but the objectives and content specific to each subject syllabus imply training of a pre-vocational type. In the United States, problems of weak policy structures have also been reported. According to Bottoms (1989), “most local school boards do not have a clear statement of goals and means to obtain these goals that provide guidance and direction for improving basic competencies of students pursuing vocational studies” (p. 7).
Based on this finding, the researcher recommends the following to the Ministry of Education:

a. The policy makers should clarify what the current focus of the technical education program at the secondary school level should be. But, before doing so, the policy makers should consider that the industrialists in Zimbabwe are divided as to whether the schools should provide technical skills or general education (Mandebvu, 1996). In addition, many employers remain unconvinced that school-based practical or vocational training is the best preparation for skilled practical work (Lauglo, 1985). Secondly, the policy makers should also bear in mind that the provision of technical skills in all the secondary schools in Zimbabwe will not work until the country has sufficient resources to support such an expensive educational program. Thirdly, it should be realized that the practice all over the world is to provide technical education of a general nature in comprehensive secondary schools and leave technical skill training for technical high schools, post secondary institutions or the industry. That way, the students develop “useful” technical skills for use when they leave school. Such an approach will minimize the chances of the technical skills being obsolete before the graduates enter the workforce.

b. Clearly communicate (through in-service programs, seminars/workshops, policy documents) the intended focus of the technical education program to the program implementors (technical teachers, teacher educators and education officers).
c. Follow up and evaluate the technical education program to ensure that the desired focus is actually what is occurring in the classroom. In other words a comparison of the taught curriculum against the official curriculum.

2. The three groups of technical education professionals were similar in their perception of the emphasis placed on current program purposes.

This conclusion is based on the following findings from the study. The five items that received the highest emphasis rating from each of the three groups of technical education professionals were almost the same for all groups. For instance, the technical teachers and teacher educators perceived the current technical education program emphasized “Developing an interest in students toward a trade or craft oriented work.” On the other hand, the education officers ranked this item second but felt the program strongly emphasized “Development of technical skills of a general nature such as measuring, planning, drawing etc.” The same item was ranked 3rd by the technical teachers and ranked 2nd by the teacher educators.

This finding is similar to results reported in a study by Marshall Schmitt and Albert Pelley (in Silvius & Curry, 1971). In their study, they determined the extent, status and character of industrial arts education in public schools of the United States. They found that both practicing teachers and their principals ranked similar items in first place, “the purpose concerned with developing a degree of skill in the use of common tools and machines” (p. 29). In a related study Hill, Wicklein and Dougherty (1996) found that “the mean responses for technology teachers, principals, and counselors reflected considerable agreement in perceptions of technology education” (p. 18).
Based on these findings and conclusions, the researcher recommends that the Ministry of Education check the perceived purposes against the desired direction of the program. Secondly, the researcher suggests that the policy makers should communicate this desired direction to all the three groups of professionals (technical teachers, teacher educators and educators), to remove any misconceptions.

3. Regarding specific statements of program purpose, discrepancies exist among the groups of technical education professionals.

This conclusion is based on the following finding from the study. The items receiving the highest rating from the technical teachers and teacher educators was ranked fifth by the education officers. Similarly, item numbered ten on the questionnaire was ranked 1st by the education officers but was ranked 4th by the teachers and was not among the top five items of the teacher educators. The 2nd item on the teacher educators list (item number 16) does not appear on either the teachers or the educators list.

Similar findings were reported in a study conducted by Strong (1990). In his study, state directors were asked to rank order seven purposes of vocational education at the secondary school. According to Strong (1990, p.142) “the leaders were found not in total agreement about the role of vocational education.” In a similar study Scarborough (1989) found differences in perceptions among the junior high school teachers when they rated the focus of their technology education program.

Based on this conclusion, the researcher recommends that the Ministry of Education should initiate a national debate on appropriate future purposes for technical education in Zimbabwe. This will allow for brainstorming issues on what is ideal before
settling on a technical education program for the country. The Ministry should further examine if programs in different areas/regions have the same mission, e.g. more rural regions may need greater technical focus while more urban regions may need greater general focus.

4. The technical education professionals (technical teachers, teacher educators, and education officers) have similar perceptions of the current focus of the technical education programs in Zimbabwe.

This conclusion is based on the following findings from the study. No significant differences were found in the current focus score by groups of technical education professionals ($F = .37, p = .69$). In addition, when the groups were asked to rate the purposes of technical education according to extent they perceived the current program, the three groups of professionals rated highest five similar items.

Based on these findings and conclusions, the researcher recommends that any measures to correct any misconceptions on the focus technical education program should be addressed to all the technical education professionals, since there are no two groups of professionals that are significantly different.

5. Technical teachers feel that the focus of the technical education program in Zimbabwe should be different from the current focus. Ideally, they prefer a more technical focus of the technical education program.

This conclusion is based on the following finding from the study. A comparison of the current and ideal focus scores by groups was significant for the technical teachers
The current focus score was lower than the ideal focus score which was above 60, indicating a preferred shift toward a program of a technical nature.

A word of caution to the reader. It must be noted that despite a statistically significant difference between the current and ideal focus scores, the actual difference in means between the focus scores was very small (1.43), considering the scale on which the focus scores were measured (20 to 100).

In addition to the higher ideal focus score when compared with the current focus score, one teacher during the informal interactions said, “The curriculum we used to teach in the F2 [crafts] secondary schools, is what we should be teaching our students because it prepared students for industry. That is what we want.” In support of this comment, Rogers (1992) acknowledges that no studies have established acceptance by teachers of technology education from the traditional trade and industrial arts education. Also, in a related study Scarborough (1989 in Rogers, 1992) found that the technology education teachers felt that the “courses should be more traditional in content, e.g., teach students how to safely use basic tools, machines” (p. 47).

Based on these findings the researcher recommends that the Ministry of Education should conduct further research to determine if the program being taught at Ordinary level conforms to the current focus or to the teachers perspective of the ideal focus. The technical teachers may not be fully aware of what the current focus of the program implies. In which case the Ministry should either convince the professionals to change their focus on the program or change the focus of the program. These results might also be an indication of some disagreement on the current program focus. In addition, the
Ministry of Education needs to conduct a needs analysis to find out whether the current vocational education program is meeting the needs of most students enrolled in the technical education program.

6. Explanatory models do exist which explain significant portions of the variance in both the current and ideal focus scores from the selected demographic variables.

This conclusion is based on the following finding from the study. Twelve variables entered into the regression model had a multiple R value of 0.376 and a corresponding R² of 0.141. This model was statistically significant (F₁₂,₂₉₃ = 4.02, p = .001). Only one of the variables, whether or not the professional had a masters degree made a statistically significant contribution to the model.

Since the contribution of the variables to the model is very small, the reader is therefore cautioned in drawing substantive conclusions from these results. Presuming the results to be accurate, it can be concluded from the exploratory model that those technical education professionals in possession of a bachelors or masters degree are somewhat more likely to have a more technical focus (beta = 0.127). The results then may be indicating reluctance to change the program focus, or a lack of agreement on the part of the more experienced technical education professionals, since most of the degree holders are most likely to be teachers for the craft-based F2 program. In that event, the Ministry of Education needs to look into the degree qualifications or programs for technical education professionals as they relate to the secondary school program. The technical education professionals with degree qualifications may need retraining or in-service courses to orient them to the focus of the new technical education program.

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On the ideal focus score model, three variables were found to make a statistically significant contribution to the model. The three variables were whether or not the professional had a masters degree, years of teaching experience, and whether or not the professional had attended a teachers college.

As with the current focus score model, the reader is cautioned in making substantive conclusions from these results. It can be concluded from the exploratory model that those technical education professionals who have a bachelors or masters degree (beta = 0.170), or those professionals with more years of teaching experience (beta = 0.131), and those professionals who teach or have taught at institutions above the high school (technical colleges, teachers colleges and university) (beta = 0.150) are likely to have a more technical focus of the ideal technical education program.

These results once again seem to point that the more experienced technical education professionals in Zimbabwe prefer a technical focus of the technical education program. As mentioned in the current focus exploratory model, holders of bachelors and masters degrees are likely to be the same professionals with more years of teaching experience. Also these professionals are likely to be teaching technical subjects at tertiary institutions. As confessed by an experienced technical teacher/lecturer who said, “The curriculum we used to teach in the F2 [crafts] secondary schools is what we should be teaching our students because it prepared students for industry. That is the curriculum we want” these professionals prefer a technical focus.
The Ministry of Education should find out whether the more experienced technical education professionals (teachers and lecturers) subscribe to the shift in program focus for the technical education program.

Recommendations for Future Research

The following areas are recommended for further research:

1. Replicate this study with technical teachers from the rural areas or other regions in Zimbabwe. Only technical teachers from an urban area and one educational region took part in this study.

2. Conduct a similar study but qualitative in nature to determine the focus of the technical education program in Zimbabwe. The reason for the qualitative study being to get anecdotal evidence to support the quantitative findings. Although this study employed mixed methodologies, it was mainly quantitative.
REFERENCES


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June 29, 1998

SUBJECT: TECHNICAL EDUCATION IN ZIMBABWE'S SECONDARY SCHOOLS

Dear Technical Subject Teacher

The success of any educational program is influenced by the extent to which that program addresses the needs of the students in the program and the needs of the society within which the program operates. The specific focus of a program is influenced by many individuals and forces within the educational and governmental system. However, no one has more influence on the direction of the program than the teacher who provides the day-to-day instruction to the students. In addition, changes that move the program in needed directions for the future are usually identified first by the teachers employed in those programs and are difficult if not impossible to successfully make without the support of these teachers. Currently, there is a project underway that is attempting to determine the focus of the educational programs in the technical subjects at “O” level in Zimbabwe, as viewed by the teachers in these programs.

The School of Vocational Education at Louisiana State University with the assistance from the Department of Technical Education at the University of Zimbabwe, is conducting a study to determine the perceptions of technical education professionals in Zimbabwe regarding the purpose of technical education programs. You have been selected as a member of a small group of technical education professionals who are being asked to assist in identifying the focus of these technical education programs. Specifically, this study intends to establish the CURRENT focus and the IDEAL focus of technical subjects at “O” level in Zimbabwe’s secondary schools. You, as a professional in technical education programs, have perceptions that are important in determining if any program changes are necessary. The empirical knowledge to be gained from this study will be useful in determining educational policy and policy revisions. Therefore, your cooperation in furnishing the requested information is very important to the success of this research. Please take this opportunity, approximately 15 minutes of your time, to share in this important task.

Your responses will be grouped with others without being individually identified. Therefore, feel free to express your total opinion as all individual information will be kept confidential. Once again, your cooperation in providing insights into what technical education professionals in Zimbabwe feel about the secondary school program is appreciated. Thank you for your time and cooperation.

Yours,

Davison M. Mupinga, Ph.D. Candidate
Louisiana State University

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PERCEPTIONS OF TECHNICAL EDUCATION PROFESSIONALS REGARDING THE PURPOSES OF TECHNICAL EDUCATION PROGRAMS IN ZIMBABWE'S SECONDARY SCHOOLS.

"SURVEY OF TECHNICAL SUBJECT TEACHERS"

Directions: This instrument is divided into THREE sections. Please respond to all sections as directed.

SECTION ONE: PERSONAL INFORMATION

Place an X in the space provided or write in the appropriate blank “other.”

1. Gender:
   ___ 1) Female
   ___ 2) Male

2. Age at last birthday?
   ___ 1) Under 25
   ___ 2) 25-34
   ___ 3) 35-45
   ___ 4) 46-55
   ___ 5) Above 55

3. Your highest level of professional education completed?
   ___ 1) Certificate in Education
   ___ 2) Diploma in Education
   ___ 3) Bachelor’s degree
   ___ 4) Master’s degree
   ___ 5) Other (please specify) __________

4. Institution where your highest professional qualification was obtained?
   ___ 1) Teachers college
   ___ 2) Technical college
   ___ 3) University
   ___ 4) Other (please specify) __________

5. Indicate the major technical subject you studied at the institution in number 4. Select more than one choice if you majored in more than one technical subject.
   ___ 1) Building Studies
   ___ 2) Fashion & Fabrics
   ___ 3) Food & Nutrition
   ___ 4) Metalwork
   ___ 5) Technical Graphics
   ___ 6) Woodwork
   ___ 7) None
   ___ 8) Other (please specify) __________

6. In which ONE of the following technical subjects do you spend most of your teaching time? Mark two or more choices only if you have EQUAL teaching loads in the subjects.
   ___ 1) Building Studies
   ___ 2) Fashion & Fabrics
   ___ 3) Food & Nutrition
   ___ 4) Metalwork
   ___ 5) Technical Graphics
   ___ 6) Woodwork
   ___ 7) Other (please specify) __________

7. Other than teaching at “O” level, at what other school level have you taught the same technical subject(s) you indicated in number 6? If you teach two or more technical subjects, write the name(s) of the subject(s) to the right of the school level.

   School level | Technical subject(s) taught
   ------------|------------------------
   ___ 1) Primary school | 1)
   ___ 2) ZJC level | 2)
   ___ 3) “A” level | 3)
   ___ 4) Teachers college | 4)
   ___ 5) Technical college | 5)
   ___ 6) University | 6)

8. Years of teaching experience?
   ___ 1) 3 years or less
   ___ 2) 4-10 years
   ___ 3) 11-17 years
   ___ 4) 18 years or more

9. Indicate the responsible authority for your secondary school?
   ___ 1) Government
   ___ 2) Church or Mission
   ___ 3) Private

10. What is the geographic location of your secondary school?
    ___ 1) Urban
    ___ 2) Suburban
### SECTION TWO: CURRENT FOCUS OF TECHNICAL EDUCATION IN ZIMBABWE

Directions: The following statements are purposes of technical education programs in secondary school. Please rate each of the statements according to the extent to which you are currently emphasizing each purpose in teaching the technical subject(s) you indicated in question 6, section one. Using the scale given below, circle the response which best expresses the emphasis you place on each purpose:

| 5 = I strongly emphasize (SE) |
| 4 = I emphasize (E) |
| 3 = I moderately emphasize (ME) |
| 2 = I slightly/somewhat emphasize (SSE) |
| 1 = I do not emphasize (NE) |

During the teaching of your technical subject(s) at Ordinary level, to what extent do you CURRENTLY emphasize the following purposes of technical education:

<table>
<thead>
<tr>
<th>Purpose</th>
<th>NE</th>
<th>SSE</th>
<th>ME</th>
<th>E</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Provide career education to assist students in making informed and meaningful occupational choices</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Provide opportunities for the application of science and mathematics concepts in the technical fields</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Develop human relation skills that will enable students to work cooperatively with others in various fields</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Develop technical skills of a general nature such as measuring, planning, drawing etc</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Develop in students an interest towards trade or craft oriented work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Develop general problem solving skills related to job situations</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. Provide occupational information pertaining to a broad range of occupations</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. Develop general technical skills applicable to various occupational clusters</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Provide consumer knowledge that enables students to be wise consumers of industrial products</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. Provide basic theoretical knowledge on key materials commonly used in Zimbabwean industries</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. Develop manipulative skills for the purpose of fitting persons in specific industries</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12. Develop in students basic home skills useful in the home or leisure use</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. Develop a high degree of skill in the use of basic tools for your trade</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. Develop technical expertise in the operation of power driven machines used in related industries</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. Develop safety skills related to a specific occupation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16. Develop specific employment skills needed to enter a particular occupational field</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17. Provide exploratory experiences related to current practices in a specific business or industry</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18. Develop technical skills to a degree where the students are self-reliant</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>19. Develop highly specialized technical skills necessary for the production of precise finished products</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>20. Prepare students for enrollment in highly skilled post secondary school technical education programs</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>21. Other (please specify)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
SECTION THREE: IDEAL FOCUS OF TECHNICAL EDUCATION IN ZIMBABWE

Directions: If you were given the opportunity to change the purpose of the technical subjects you identified in question 6, section 1, how much emphasis would you IDEALLY place on the purposes of the program? Using the scale given below, circle the response which best expresses the emphasis you would place on each purpose:

5 = I would strongly emphasize (SE)
4 = I would emphasize (E)
3 = I would moderately emphasize (ME)
2 = I would slightly/somewhat emphasize (SSE)
1 = I would not emphasize (NE)

IN YOUR OPINION, to what extent should the following purposes be IDEALLY emphasized during the teaching of your technical subjects at "O" level in Zimbabwe:

<table>
<thead>
<tr>
<th>Purpose</th>
<th>NE</th>
<th>SSE</th>
<th>ME</th>
<th>E</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Develop manipulative skills for the purpose of fitting persons in specific industries.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Develop in students basic home skills useful in the home or leisure use</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Develop a high degree of skill in the use of basic tools for your trade</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Develop technical expertise in the operation of power driven machines used in related industries</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Develop safety skills related to a specific occupation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Develop specific employment skills needed to enter a particular occupational field</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. Provide exploratory experiences related to current practices in a specific business or industry</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
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</table>

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE
APPENDIX B: QUESTIONNAIRE FOR TEACHER EDUCATORS

DEPARTMENT OF
TECHNICAL EDUCATION

P. O. Box MP 167
Mount Pleasant
Harare, Zimbabwe

CHAIRMAN:

UNIVERSITY OF ZIMBABWE

June 29, 1998

SUBJECT: TECHNICAL EDUCATION IN ZIMBABWE'S SECONDARY SCHOOLS

Dear College Lecturer

The success of any educational program is influenced by the extent to which that program addresses the needs of the students in the program and the needs of the society within which the program operates. The specific focus of a program is influenced by many individuals and forces within the educational and governmental system, such as teachers, college lecturers and education officers. However, no one has more influence on the direction of the program than the teacher trainer who provides the instruction to the teachers during training. In addition, changes that move the program in needed directions for the future are usually identified first by the teacher educators employed in those programs and are difficult if not impossible to successfully make without the support of the these teacher trainers. Currently, there is a project underway that is attempting to determine the focus of the educational programs in the technical subjects at "O" level in Zimbabwe, as viewed by the teacher educators in these programs.

The School of Vocational Education at Louisiana State University with the assistance from the Department of Technical Education at the University of Zimbabwe, is conducting a study to determine the perceptions of technical education professionals in Zimbabwe regarding the purpose of technical education programs. You have been selected as a member of a small group of technical education professionals in Zimbabwe who are being asked to assist in identifying the focus of these technical education programs. Specifically, this study intends to establish the CURRENT focus and the IDEAL focus of technical subjects at "O" level in Zimbabwe's secondary schools. You, as a professional in technical education programs, have perceptions that are important in determining if any program changes are necessary. The empirical knowledge to be gained from this study will be useful in determining educational policy and policy revisions. Therefore, your cooperation in furnishing the requested information is very important to the success of this research. Please take this opportunity, approximately 15 minutes of your time, to share in this important task.

Your responses will be grouped with others without being individually identified. Therefore, feel free to express your total opinion as all individual information will be kept confidential. Once again, your cooperation in providing insights into what technical education professionals in Zimbabwe feel about the secondary school program is appreciated. Thank you for your time and cooperation.

Yours,

Davison M. Mpinga, Ph.D. Candidate
Louisiana State University
PERCEPTION OF TECHNICAL EDUCATION PROFESSIONALS REGARDING THE PURPOSE OF TECHNICAL EDUCATION PROGRAMS IN ZIMBABWE'S SECONDARY SCHOOLS.

"SURVEY OF COLLEGE LECTURERS"

Directions: This instrument is divided into THREE sections. Please respond to all sections as directed.

SECTION ONE: PERSONAL INFORMATION

Place an X in the space provided or write in the appropriate blank "other".

1. Gender:
   ___1) Female
   ___2) Male

2. Age at last birthday?
   ___1) 25 or less
   ___2) 26-35
   ___3) 36-45
   ___4) 46-55
   ___5) more than 55

3. Your highest level of professional education completed?
   ___1) Certificate in Education
   ___2) Diploma in Education
   ___3) Bachelor's degree
   ___4) Master's degree
   ___5) Other (please specify) ___________

4. Institution where your professional technical qualification was obtained?
   ___1) Teachers college
   ___2) Technical college
   ___3) University
   ___4) Other (please specify) ___________

5. Indicate the major technical subject you studied at the institution in number 4. Select more than one choice if you majored in more than one technical subject.
   ___1) Building Studies
   ___2) Fashion & Fabrics
   ___3) Food & Nutrition
   ___4) Metalwork
   ___5) Technical Graphics
   ___6) Woodwork
   ___7) None
   ___8) Other (please specify) ___________

6. In which ONE of the following technical subjects do you spend most of your teaching time? Mark two or more choices if you have EQUAL teaching loads in the technical subjects.
   ___1) Building Studies
   ___2) Fashion & Fabrics
   ___3) Food & Nutrition
   ___4) Metalwork
   ___5) Technical Graphics
   ___6) Woodwork
   ___7) Other (please specify) ___________

7. Other than teaching at the teachers college level, at what other school level have you taught the same technical subject(s) that you currently teach, as indicated in number 6? If you taught two or more technical subjects, write the name(s) of the subject(s) to the right of the school level.

   School level       Technical subject(s) taught
   ___1) Primary school 1)
   ___2) ZJC level 2)
   ___3) "A" level 3)
   ___4) Technical college 4)
   ___5) University 5)
   ___6) Other: 6)

8. Years of teaching experience at teachers college level?
   ___1) 3 years or less
   ___2) 4 - 10 years
   ___3) 11-17 years
   ___4) 18 years or more
SECTION TWO: CURRENT FOCUS OF TECHNICAL EDUCATION IN ZIMBABWE

Directions: The following statements are purposes of technical education programs in secondary school. Please rate each of the stated program purposes according to the extent to which you perceive that it is CURRENTLY being emphasized at "O" level during the teaching of the technical subject(s) you identified in question 6, section one. Using the scale given below, circle the response which best expresses the emphasis that teachers put on each purpose:

5 = Teachers strongly emphasize (SE)
4 = Teachers emphasize (E)
3 = Teachers moderately emphasize (ME)
2 = Teachers slightly/somewhat emphasize (SSE)
1 = Teachers do not emphasize (NE)

To what extent do you perceive the following purposes of technical education to be CURRENTLY emphasized by teachers when teaching technical subjects at "O" level

<table>
<thead>
<tr>
<th>Purpose</th>
<th>NE</th>
<th>SSE</th>
<th>ME</th>
<th>E</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Provide career education to assist students in making informed and meaningful occupational choices</td>
<td>1  2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Provide opportunities for the application of science and mathematics concepts in the technical fields</td>
<td>1  2 3 4 5</td>
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<td>3. Develop human relation skills that will enable students to work cooperatively with others in various fields</td>
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<td>4. Develop technical skills of a general nature such as measuring, planning, drawing etc</td>
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<td>6. Develop general problem solving skills related to job situations</td>
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<td>8. Develop general technical skills applicable to various occupational clusters</td>
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<tr>
<td>11. Develop manipulative skills for the purpose of fitting persons in specific industries</td>
<td>1  2 3 4 5</td>
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<tr>
<td>12. Develop in students basic home skills useful in the home or leisure use</td>
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<tr>
<td>13. Develop a high degree of skill in the use of basic tools for your trade</td>
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<tr>
<td>14. Develop technical expertise in the operation of power driven machines used in related industries</td>
<td>1  2 3 4 5</td>
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<tr>
<td>15. Develop safety skills related to a specific occupation</td>
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<tr>
<td>16. Develop specific employment skills needed to enter a particular occupational field</td>
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<td>17. Provide exploratory experiences related to current practices in a specific business or industry</td>
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</table>
SECTION THREE: IDEAL FOCUS OF TECHNICAL EDUCATION IN ZIMBABWE

Directions: If you were given the opportunity to change the purpose of the technical subject(s) you identified in question 6, section 1, what emphasis would you IDEALLY place on the purposes of the “O” level subject? Using the scale given below, circle the degree of emphasis you perceive that teachers should ideally place on each of the purposes:

- 5 = To be strongly emphasized (SE)
- 4 = To be emphasized (E)
- 3 = To be moderately emphasized (ME)
- 2 = To be slightly/somewhat emphasized (SSE)
- 1 = Not to be emphasized (NE)

<table>
<thead>
<tr>
<th>IN YOUR OPINION, to what extent should the following purposes be IDEALLY emphasized during the teaching of technical subjects at “O” level in Zimbabwe?</th>
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<th>SSE</th>
<th>ME</th>
<th>E</th>
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THANK YOU FOR COMPLETING THIS QUESTIONNAIRE
APPENDIX A: QUESTIONNAIRE FOR EDUCATION OFFICERS

DEPARTMENT OF TECHNICAL EDUCATION

CHAIRMAN:

TEL. 303211 Ext. 1193
Telex: 26580 UNIVZ ZW
Telegrams: UNIVERSITY
Fax: (263-4) 333407

UNIVERSITY OF ZIMBABWE

June 29, 1998

SUBJECT: TECHNICAL EDUCATION IN ZIMBABWE’S SECONDARY SCHOOLS

Dear Education Officer,

The success of any educational program is influenced by the extent to which that program addresses the needs of the students in the program and the needs of the society within which the program operates. The specific focus of a program is influenced by many individuals and forces within the educational and governmental system, such as teachers, teacher educators and education officers. However, no one has more influence on the direction of the program than the education officer who provides the guidance and supervision to the teachers in the schools. In addition, changes that move the program in needed directions for the future are usually identified first by the education officers for these programs and are difficult if not impossible to successfully make without their support. Currently, there is a project underway that is attempting to determine the focus of the educational programs in the technical subjects at “O” level in Zimbabwe, as viewed by the education officers for technical subjects.

The School of Vocational Education at Louisiana State University with the assistance from the Department of Technical Education at the University of Zimbabwe, is conducting a study to determine the perceptions of technical education professionals in Zimbabwe regarding the purpose of technical education programs. You have been selected as a member of a small group of technical education professionals in Zimbabwe who are being asked to assist in identifying the focus of these technical education programs. Specifically, this study intends to establish the CURRENT focus and the IDEAL focus of technical subjects at “O” level in Zimbabwe’s secondary schools. You, as a professional in technical education programs, have perceptions that are important in determining if any program changes are necessary. The empirical knowledge to be gained from this study will be useful in determining educational policy and policy revisions. Therefore, your cooperation in furnishing the requested information is very important to the success of this research. Please take this opportunity, approximately 15 minutes of your time, to share in this important task.

Your responses will be grouped with others without being individually identified. Therefore, feel free to express your total opinion as all individual information will be kept confidential. A self addressed and stamped envelope is enclosed for returning the completed questionnaire. It would be appreciated if you complete and return the instrument within three days. Once again, your cooperation in providing insights into what technical education professionals in Zimbabwe feel about the secondary school program is appreciated. Thank you for your time and cooperation.

Yours,

Davison M. Mupinga, Ph.D. Candidate
Louisiana State University

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PERCEPTIONS OF TECHNICAL EDUCATION PROFESSIONALS REGARDING THE PURPOSES OF TECHNICAL EDUCATION PROGRAMS IN ZIMBABWE'S SECONDARY SCHOOLS.

"SURVEY OF EDUCATION OFFICERS, TECHNICAL SUBJECTS"

Directions: This instrument is divided into THREE sections. Please respond to all sections as directed and return the questionnaire in the envelope provided to: Davison M. Mupinga, University of Zimbabwe, Department of Technical Education, P.O. Box MP 167, Mt Pleasant, Harare.

SECTION ONE: PERSONAL INFORMATION

Place an X in the space provided or write in the appropriate blank “other.”

1. Gender:
   - 1) Female
   - 2) Male

2. Age at last birthday?
   - 1) 25 or less
   - 2) 26-35
   - 3) 36-45
   - 4) 46-55
   - 5) more than 55

3. Your highest level of professional education completed?
   - 1) Certificate in Education
   - 2) Diploma in Education
   - 3) Bachelor's degree
   - 4) Master's degree
   - 5) Other (please specify) _________________

4. Institution where your highest professional qualification was obtained?
   - 1) Teachers college
   - 2) Technical college
   - 3) University
   - 4) Other (please specify) _________________

5. Indicate the major technical subject you studied at the institution you indicated in number 4. Select more than one choice if you majored in more than one technical subject.
   - 1) Building Studies
   - 2) Fashion & Fabrics
   - 3) Food & Nutrition
   - 4) Metalwork
   - 5) Technical Graphics
   - 6) Woodwork
   - 7) None
   - 8) Other (please specify) _________________

6. Indicate the technical subject that you have taught. Mark two or more choices if you had EQUAL teaching loads in the technical subjects.
   - 1) Building Studies
   - 2) Fashion & Fabrics
   - 3) Food & Nutrition
   - 4) Metalwork
   - 5) Technical Graphics
   - 6) Woodwork
   - 7) Never taught technical subjects
   - 8) Other (please specify) ____________________

7. At what school level(s) did you teach the technical subject(s) you indicated in number 6? If you taught two or more technical subjects, write the name(s) of the subject(s) to the right of the school level.

   School level   Technical subject(s) taught
   1) Primary school 1) __________________
   2) ZJC level 2) __________________
   3) "A" level 3) __________________
   4) Teachers college 4) __________________
   5) Technical college 5) __________________
   6) University 6) __________________
   7) Other: 7) __________________
   8) None

8. Teaching experience in years?
   - 1) 3 years or less
   - 2) 4 -10 years
   - 3) 11-17 years
   - 4) 18 years or more

9. Number of years working as an Education Officer for technical subjects:
   - 1) 3 years or less
   - 2) 4 -10 years
   - 3) 11-17 years
   - 4) 18 years or more
SECTION TWO: CURRENT FOCUS OF TECHNICAL EDUCATION IN ZIMBABWE

Directions: The following statements are purposes of technical education programs in secondary school. Please rate each of the stated program purposes according to the extent to which you perceive that it is CURRENTLY being emphasized at "O" level during the teaching of the technical subject(s) that you identified in question 5, section 1. Using the scale given below, circle the response which best expresses the emphasis you place on each purpose:

5 = Teachers strongly emphasize (SE)
4 = Teachers emphasize (E)
3 = Teachers moderately emphasize (ME)
2 = Teachers slightly/somewhat emphasize (SSE)
1 = Teachers do not emphasize (NE).

<table>
<thead>
<tr>
<th>Purpose</th>
<th>NE</th>
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<th>ME</th>
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<th>SE</th>
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<td>2. Provide opportunities for the application of science and mathematics concepts in the technical fields</td>
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<td>3. Develop human relation skills that will enable students to work cooperatively with others in various fields</td>
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<td>13. Develop a high degree of skill in the use of basic tools for your trade</td>
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<td>14. Develop technical expertise in the operation of power driven machines used in related industries</td>
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<td>15. Develop safety skills related to a specific occupation</td>
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<td>16. Develop specific employment skills needed to enter a particular occupational field</td>
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<td>17. Provide exploratory experiences related to current practices in a specific business or industry</td>
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<td>19. Develop highly specialized technical skills necessary for the production of precise finished products</td>
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<td>20. Prepare students for enrollment in highly skilled post secondary school technical education programs</td>
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<td>21. Other (please specify)</td>
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</table>

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SECTION THREE: IDEAL FOCUS OF TECHNICAL EDUCATION IN ZIMBABWE

Directions: If you were given the opportunity to change the focus of the technical education at Ordinary level in Zimbabwe, what emphasis would you IDEALLY put on each of the stated purposes below. Circle the response which best expresses the emphasis to each purpose according to the following scale:

5 = To be strongly emphasized (SE)
4 = To be emphasized (E)
3 = To be moderately emphasized (ME)
2 = To be slightly/somewhat emphasized (SSE)
1 = Not to be emphasized (NE)

<table>
<thead>
<tr>
<th>IN YOUR OPINION, to what extent should the following purposes be IDEALLY emphasized during the teaching of technical subjects at “O” level in Zimbabwe?</th>
<th>NE</th>
<th>SSE</th>
<th>ME</th>
<th>E</th>
<th>SE</th>
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<td>11. Provide career education to assist students in making informed and meaningful occupational choices</td>
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<td>12. Provide opportunities for the application of science and mathematics concepts in the technical fields</td>
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<td>13. Develop human relation skills that will enable students to work cooperatively with others in various fields</td>
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<td>14. Develop technical skills of a general nature such as measuring, planning, drawing etc.</td>
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THANK YOU FOR COMPLETING THIS QUESTIONNAIRE

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APPENDIX D: LETTER OF PERMISSION FROM MINISTRY OF EDUCATION

REF: C/440/1 Bre

Ministry of Education
Harare-Regional Office
P.O. Box CT 1483
CASSINO ROAD, HARARE,
ZIMBABWE.

Dear Mr. A. Mupedziswa,

It is with reference to your letter dated ... and the Secretary's clearances letter dated ... that I am writing to confirm that you have the Regional Director's permission to carry out your research in the schools under Harare Region.

Please liaise with the Heads of Schools of your choice and show them this letter before you make firm arrangements with them on the conduct of your research.

By copy of this minute all Heads approached by Mr/Mrs/Miss ... are kindly requested to assist him/her with his/her research.

Yours sincerely,

[Signature]

Regional Director, Harare Region

/HTT
APPENDIX E: LETTER OF PERMISSION FROM
MINISTRY OF HIGHER EDUCATION

Reference: E71

MINISTRY OF HIGHER EDUCATION
AND TECHNOLOGY
P.O. Box UA 275
Union Avenue
Harare

ZIMBABWE

All communications should be addressed to
"The Secretary for Higher Education and Technology"

Telephone: 795891/5—796410/0—730055/9
Telegraphic address: "EDUCATION"

22 June 1998

Mr D M Mupinga
University of Zimbabwe
Technical Education
P O Box MP 167
Mount Pleasant
Harare

Dear Sir

Re: Permission to Conduct Research on The Perceptions of Technical Education Professionals Toward the Purposes of Technical Education Programmes at the Ordinary Level in Zimbabwe

In response to your letter dated 7 May 1998 referring to the above subject, I would like to inform you that the Ministry has no objection to your request. Please make the necessary arrangements with the Institutions concerned so that you can proceed with your research. The Ministry would really appreciate a copy of your report.

Wishing you all the success.

Yours faithfully

Tinarwo A. (Mrs)
for: SECRETARY FOR HIGHER EDUCATION AND TECHNOLOGY
VITA

Davison Muchemwa Mupinga is a native of the Republic of Zimbabwe. He was born in a family of five in the district of Hurungwe in Zimbabwe. He is married to Emily, and has a daughter Rumbidzai, and son Tanaka. He received his early education in Zimbabwe, and later a certificate in education from Gweru Teachers College in 1983. He taught at Sandringham high school for three years before enrolling at the University of Zimbabwe to study for a bachelor of education degree. In 1987, he graduated with a bachelor of education degree from the University of Zimbabwe. He then attended Linkoping University in Sweden, and graduated with a master of arts degree in 1989. He joined the teaching staff at the University of Zimbabwe in June 1989, as a lecturer in the department of Curriculum and Arts.

In 1995, he left Zimbabwe to pursue doctoral studies in the United States. He enrolled in a doctoral degree program at Louisiana State University in 1996. In 1997, he earned a master of science degree from Louisiana State University. He will be awarded his degree of Doctor of Philosophy in May, 1999.
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Davison Muchemwa Mupinga

Major Field: Vocational Education

Title of Dissertation: Perceptions of Technical Education Professionals Regarding the Purposes of Technical Education Programs in Zimbabwe's Secondary Schools

Date of Examination: October 21, 1998

Examiners:
Michael J. Burnett
John A. Redman
Robert J. Amend

Dean of the Graduate School:

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