PRINCIPALS' ROLE IN THE IMPLEMENTATION OF CURRICULUM EFFECTIVENESS STRATEGY IN ZIMBABWEAN POLYTECHNICS

by

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DECLARATION

I, Wilfred Mazani, declare that *Principals' role in the implementation of curriculum strategy in Zimbabwean polytechnics* is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

_____ _____ 15 May 2015_____

SIGNATURE   DATE

W. MAZANI

DEDICATION

This work is dedicated to following

- The Mighty God (Psalms 118: 25; 65:5 & 106:1; Titus 2: 14; 1 Chronicles 12: 18).
- My beloved and affectionate wife, Elizabeth Mazani
- My late parents
- All the family members
- All brethren who assisted in prayer

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ABSTRACT

The central aim of this study was to investigatethe role of principals in the implementation of polytechnic curriculum effectiveness strategy (PCS) in Zimbabwe. The specific objectives of the study were to: determine and evaluate the role and strategic leadership skills of polytechnic principals in the development of PCS, understand the challenges faced by polytechnic principals in the development and implementation of PCS, investigate the extent to which principals provide lecturers with opportunities to enhance their teaching skills through professional development and derive a suitable model to be used in drafting and implementing PCS. The main research question which this study sought to answer was, 'What is the role played by strategic leadership in the implementation of polytechnic curriculum effectiveness strategy?'

In an attempt to realise that end, a mixed method research design was used to collect data, making use of questionnaires and interviews. The participants included 5 polytechnic principals, 123 lecturers, 77 students and 9 company training managers. The participants were selected through purposive, stratified and simple random sampling techniques drawn from five polytechnics selected for the study.

The findings suggest that most polytechnic principals are rendered ineffective in implementing the PCS. Though the principals have a sound theoretical knowledge of their roles, they however experience a litany of practical impediments. These barriers include, *inter alia*, lack of curricula knowledge in the *currere* approach, action research, Basil Bernstein's and Paulo Freire's pedagogical discourses and reconceptualisation of curriculum, shortage of relevant instructional resources and poorly evaluated polytechnic curriculum, low level of staff incentive, training and development. Two systemic impediments in the principals' role of implementing PCS are: lack of autonomy in crafting and implementing PCS and lack consensus between Curriculum Research and Development Unit (CRADU) and National Manpower Advisory Council (NAMACO) in crafting policies on curriculum standards.

Key terms: Action research, reconceptualisation of curriculum, pedagogising knowledge, *currere* approach, strategy implementation, strategic leadership.

ACRONYMS

BTech	Bachelor of Technology
CEO	Chief Executive Office
CZI	Confederation of Zimbabwean Industries
CBT	competency Based Training
CSC	Civil Service Commission
CTM	Company Training Manager
DACUM	Develop a Curriculum
HEXCO	Higher Education Examination Council
HOD	Head of Development
HND	Higher National Diploma
HTE	Higher and Tertiary Education
IT	Information Technology
ITTD	Industrial Trade Testing Department
NAMACO	National Manpower Advisory Council
NC	National Certificate
ND	National Diploma
NFC	National Foundation Certificate
NVQ	National Vocational Qualification
NUST	National University of Science of Technology
PVC	Pre-Vocational Qualification
RBM	Results based management
CRADU	Curriculum Research and Development Unit
SKA	Skills, Knowledge and Attitudes
TVET	Technical and Vocational Education and Training
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNISA	University of South Africa
ZBC	Zimbabwe Broadcasting Corporation
ZCC	Zimbabwe Chamber of Commerce
ZESA	Zimbabwe Electricity Supply Authority
ZFETC	Zimbabwe Further Education Trainers' Certificate
ZFETD	Zimbabwe Further Education Trainers' Diploma
ZIMDEF	Zimbabwe Manpower Development Education Fund
ZIMSEC	Zimbabwe Schools Examination Council
ZISCO	Zimbabwe Iron and Steel Company

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CHAPTER 1

INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

In Zimbabwe, public institutions, government ministries and departments including polytechnics, are governed by individual Ministers and Permanent Secretaries responsible for each ministry. Polytechnics and teacher training colleges are governed by the Manpower Planning and Development Act (1996), which states that the Minister of Higher and Tertiary Education (HTE) is responsible for determining the fees, coordination and standardisation of technical or vocational education. The Zimbabwean polytechnics offer programmes from full-time National Certificate to Higher National Diploma technician courses in commerce, science, surveying, civil engineering, clothing technology, automotive engineering, electrical engineering, mechanical engineering, printing and graphic arts, among others. Despite the governance structures, policies and different programmes being in place, what seem to be lacking are principals' strategic leadership skills to effectively implement strategies to run polytechnics. Most polytechnics have admitted that they did not make regular studies of the local industrial orientation, and as a result, they were unable to respond to the needs of the local industries (Nziramasanga, 1999: 422).

Polytechnic curriculum has to be effective if it is to address the needs of industry. Curriculum effectiveness is the designing, implementing, monitoring and evaluating of a new curriculum that is relevant to the changing job market or current development needs of Zimbabwe. In this study, curriculum relevance is considered synonymous with curriculum effectiveness. For a curriculum to be effective, a principal needs to be skilled in strategic leadership to guide the whole process of curriculum development. Kanyongo (2005: 68) agrees with Boakye-Agyeman (2006: 5) that there is a misconception that exists among some academics that polytechnics simply duplicate the functions of universities. However, the fact is that, polytechnics are career-oriented and produce mainly technicians and artisans, or graduates with technical and vocational skills.

Very little research has been conducted on the role of Zimbabwean polytechnic principals' strategic leadership in effective curriculum planning, implementation and evaluation. The implementation of polytechnic curriculum strategy (PCS), which brings superior performance from polytechnic graduates in industry, is more important than the formulation of curriculum (Freedman & Tregoe, 2003: 110, Mankins & Steele, 2005: 67). Effective implementation of strategy depends on the level of principals' strategic leadership capacities. With reference to business organisations in the USA (Morgan, Levitt & Malek, 2007: 1), there has been a documented high failure rate in the implementation of strategy with only 10% of the formulated strategies being successfully implemented. Mankins and Steele (2005: 65) rate the success rate at a slightly higher level, arguing that only 37% of the formulated strategies see the light of the day while 63% fail in most US business organisations. Although the same results may not be transferable to the implementation of curriculum strategy in Zimbabwean polytechnics, this research is aimed at determining whether strategic leadership is better able to equip principals with necessary skills to deal with the ever-changing socio-economic environment to suit the changing needs of the students, lecturers and employers.

The decade (2001-2010) in Zimbabwe was characterised by turbulent political changes and economic hardships as the country steadily plunged into a sustained period of hyperinflation with the overall official inflation rate reaching up to 2.2 million percent as in May 2008 (Gono, 2008: 26). This harsh socio-political environment had far-reaching negative repercussions on polytechnic curriculum strategy (PCS), as high labour turnover at almost every level of skill occurred, thus negatively affecting the quality of graduates these institutions produced. Preedy, Glatter and Wise (2003: 2) concurred that the external environment for schools and colleges is often characterised by increasing turbulence and uncertainty as a result of various social and political pressures. The pass rate, quality of passes, the standard of the skills obtained by the new graduates, and above all, the quality of infrastructural resources have all nose-dived. With reference to the Zimbabwean organisations, Nyambayo (2008: 32) noted that principals of polytechnics could not pursue what he calls a "multiplicity of strategies in dynamic environments" because of a lack of resources. This scenario portrayed a lack of strategic leadership skills to effectively manage resources.

1.2 GOVERNANCE OF ZIMBABWEAN POLYTECHNICS

Very little research has been carried out on the Zimbabwean polytechnic principals' strategic leadership competencies to effectively implement polytechnic curriculum strategy (PCS), given the policy environment that characterises the running of polytechnics. The Manpower Planning and Development Act (1996:sec 28.02) states that the role of the Minister in polytechnics is to exercise his or her powers under this Act to establish and develop institutions devoted to the production of qualified professional manpower, and the co-ordination and standardisation of technical or vocational education. The standardisation of technical or vocational education at the Ministry's level might, however, mean that the specific needs of the different Zimbabwean communities are not met. The Zimbabwean city of Kwekwe, well-known for iron mining and steel production, could have a stronger demand for a technical education curriculum that is geared towards the particular economic and industrial needs of the surrounding communities than, for example, a polytechnic in Harare where business skills might be more relevant. Even though Zimbabwean polytechnics are governed by the Manpower Planning and Development Act (Manpower Planning and Development Act, 1996: Sec. 28.02), lack of autonomy is not the major problem. What is problematic is that polytechnic principals fail to determine strategic direction in the development of a curriculum that is relevant to the needs of employers (Nziramasanga, 1999: 434).

All the Zimbabwean government ministries and departments, including polytechnics are governed by the Public Service Commission. The Zimbabwean Public Service Act (1996: sec 16.04) stipulates that the role of the Civil Service Commission (CSC) shall be to appoint and promote any person who, in the Commission's opinion, is the most suitable for appointment to the office, post or grade concerned. The role of principals in this regard, is to recruit, short list and interview lecturers and other staff members on behalf of CSC, using CSC policies. This presents an opportunity for principals to exercise their strategic leadership competences in setting the strategic direction of selecting the competent lecturers. However, most lecturers selected do not have pedagogical or andragogical skills to scheme, plan and deliver lectures competently. According to CSC, the minimum qualification of a polytechnic lecturer is a diploma in the relevant specialist field where one wishes to teach. No reference is

made to whether a lecturer should possess any academic or professional qualifications. Every polytechnic has a department that trains lecturers without any educational qualifications to equip them with teaching skills. However, this policy is left to the discretion of individual principals, and is reluctantly enforced by principals because it is not part of CSC's policy. This compromises quality of instructional delivery. In addition, it demonstrates weak strategic leadership skills of principals in strengthening human development capacities of lecturers.

The National Manpower Advisory Council (NAMACO) whose major task is to develop and implement Zimbabwe Occupational Standards Framework was established in 1996 (The Manpower Planning and Development Act, 1996: sec 19. 2).The main beneficiaries of NAMACO are Higher Education Examinations Council (HEXCO) and Curriculum Research and Development Unit (CRADU) in the Ministry of Higher and Tertiary Education. NAMACO is expected to determine relevant and up-to-date job profiles in liaison with industry representatives such as the Confederation of Zimbabwean Industries (CZI) and the Zimbabwe Chamber of Commerce (ZCC). The job profiles are handed over to CRADU and polytechnic principals for development of industry-based curriculum. Since strategic leadership is the life-blood of running polytechnics, principals' roles are strategically geared to providing the necessary support to CRADU and NAMACO to develop the relevant polytechnic curriculum that ultimately aligns itself with the specific needs of industry. However, there is a weak link between the role of NAMACO and the quality of polytechnic curriculum. Weaker also are the principals' strategic leadership skills in creating effective curricula to align with NAMACO's job profiles.

One milestone that was achieved in 1999, in the running of Zimbabwean polytechnics is that the Permanent Secretary for Higher and Tertiary Education approved the Accounting Procedures for the Tertiary Education and Training Development (The Tertiary Education and Training Development Fund policy, 1999: 9). The Tertiary Education and Training Development Fund was established as part of the government's policy of decentralisation of authority, and retention of fees at local institutions. This policy thrust is designed to allow flexibility for institutions to collect and utilise revenues as they deem fit in meeting the funding requirements of their programmes and activities. Even though the actual curriculum activities to be

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funded are outlined by the policy, it gives principals considerable discretion on how to use the revenue collected. What is useful is that this revenue collection is ploughed back into polytechnics for use at the discretion of the principals and their finance committees. This money forms part of the institutional budget, although only the above sources of revenue are permissible. Principals' strategic leadership skills should influence PCS by channelling revenue towards strategic curriculum activities such as acquiring state-of-the-art machinery for training of students. However, some polytechnics have old machinery in their store rooms while newly established polytechnics have no machinery for some of their disciplines (Nziramasanga, 1999: 423), which suggests that some principals lack skills in strategically managing their financial resources.

This thrust in strategic leadership skills is in line with Hitt, Ireland and Hoskisson's, (2007: 385) contention that effective management of an organisation's resource portfolio is "probably the most important task of strategic leaders." Moreover, the effective management of resource portfolio is critical in the effective implementation of strategy (Dyck, Mauws, Starke & Mischke, 2002: 143; Hitt, *et al.,* 2007: 384). The polytechnic curriculum could make more effective if it were supported by resources. To function effectively, every polytechnic requires money. For example, every polytechnic student is expected to undergo industrial attachment for a year where at least three supervision visits are paid. Each polytechnic is expected to have several vehicles, enough money for travel and subsistence allowances for lecturers and drivers to run this programme, otherwise the quality of the curriculum will be difficult to monitor.

1.3 THE RESEARCH PROBLEM

Zimbabwean polytechnics are characterised by an uncertain socio-economic environment that calls for ingenuity in exercising effective strategic leadership skills in mapping the strategic direction that can influence the development of an effective polytechnic curriculum. The knowledge gap lies in several areas. The resource-based view (RBV) of polytechnics is weak. Polytechnic lecturers' andragogical competences are questionable. Moreover, the CSC recruitment policy states that anyone with a minimum of a diploma or journeyman certificate in the area he or she wants to teach can be a lecturer (Civil Service Commission, 2004: 1). Therefore,

they recruit technicians and artisans as lecturers, although some of them do not hold therequired diplomas. . However, each polytechnic has an education department that trains lecturers in andragogical skills, where Further Education Trainers Certificate and Diplomas are obtained. Unfortunately, this creates a situation where classes are under-enrolled as the management does not enforce the CSC professionalisation policy.

Even principals' knowledge of curriculum theory such as the "*currere*" approach (Pinar, 1975: 1), action research (Lewin, 1946: 35) and reconceptualisation of curriculum (Pinar, 1978: 3), as well as critical pedagogy (Freire, 1993: 19), is quite questionable. Such skills help trainers to understand characteristics of adult learners (Knowles, 1984: 47). Polytechnic graduates find it very difficult to cope with industry demands because the curriculum lacks the relevant content. This study seeks tosensitise principals, CRADU and NAMACO to adopt the *currere* approach and be able to pedagogise knowledge. The study will contribute to current trends of curriculum theory which include the development of implementable strategic leadership skills in the public sector.

Therefore this study seeks to explore the extent to which Zimbabwean polytechnic principals are competent in employing strategic leadership skills for crafting and implementing PCS, given their level of autonomy and civil service policies that govern them.

1.4 MAIN QUESTION

Since Mouton (2001: 53) suggested that research problems may also be formulated in the form of questions as a way of focusing the research problem, the main research question which this study seeks to answer is presented below.

What is the role played by strategic leadership in the implementation of polytechnic curriculum strategy?

1.4.1 Research Objectives

The research objectives derived from the discussion of the research problem are:

i. To determine the role of polytechnic principals in the development and implementation of curriculum strategy;

ii. To evaluate the leadership skills of polytechnic principals in the implementation of curriculum strategy;

iii. To understand the challenges faced by polytechnic principals in the development and implementation of curriculum strategy;

iv. To evaluate metrics or standards that are used the principal to measure curriculum strategy in Zimbabwean polytechnic education?

v.   To derive a suitable model for use by polytechnic principals in drafting and implementing curriculum strategies.

1.4.2 Research Questions

i.   What are the principals' roles in crafting and implementing polytechnic curriculum strategy?

ii. How effective are the leadership skills of polytechnic principals in the implementation of curriculum strategy?

iii. How can Zimbabwean polytechnic principals effectively overcome challenges they experience in implementing curriculum strategy?

iv. What metrics or standards are required by principals to measure curriculum strategy in Zimbabwean polytechnic education?

v.   What suitable model can polytechnic principals use to implement polytechnic curriculum strategy?

1.5 AIM OF THE STUDY

Mouton (2001: 188) asserts that research aims orient the reader. Therefore, this study's primary aim is to determine the level of strategic leadership competences which principals have in developing polytechnic curriculum strategy.

1.6IMPORTANT DEFINITIONS

This section defines and explains the key terms that are used in this study and provide its conceptual framework.

1.6.1 Strategic Management

The context of PCS is situated in the broad area of strategic management. The effective formulation, implementation and evaluation of strategy remain key elements of success in highly turbulent and chaotic business environment (Hitt, *et al.,* 2007: 7). In this regard, the effectiveness of the PCS is modelled along the process of planning, designing, implementation and evaluation in consultation with Zimbabwean industries and National Manpower Planning Advisory Council (NAMACO).

Strategic management is defined as "the full set of commitments, decisions, and actions required for an organisation to achieve strategic competitiveness and earn above-average returns" (Hitt*, et al.*, 2007: 7). Pearce and Robinson (2005: 3) view strategic management as "the set of decisions and actions that result in the formulation and implementation of plans designed to achieve [an organisation's] objectives." For polytechnics to be effective, well formulated strategic plans have to be implemented by skilled professionals. In addition, strategic management is a process consisting of:

- formulating strategic vision and business mission;
- setting objectives or long-term goals;
- formulating a strategy to achieve objectives;
- strategy implementation; and
- strategy control (Thompson & Strickland, 2003: 7).

The Zimbabwean polytechnic strategic management process is consistent with the above steps, though what might be different is the quality of the process and the outcome. Polytechnic principals together with their academic boards, formulate strategic plans after every five years. What then remains a daunting challenge is to translate those ideas into action.

1.6.2 Strategy

Strategy can be defined as "the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals" (Chandler, 1962: 13).This

definition highlights key components such as, the 'adoption of courses of action,' and, 'allocation of resources.' Courses of action not supported by adequate resources will ultimately render the process of strategic planning futile.

Porter (1996: 62) defined strategy as "a broad formula of how a business is going to compete, what its goals should be, and what policies will be needed to carry out these goals." Porter places more emphasis on competition between organisations offering the same services. In this case, polytechnics are taken to be in competition with each other to produce quality graduates by attracting qualified staff and having good recruitment and retention policies.

Mintzberg (1994: 108) defined a strategy as "a plan, a position, a perspective, a ploy, and a manoeuvre intended to outwit a competitor." (Mintzberg's 5 Ps for strategy consist of plan, ploy, pattern, position and perspective). Notable here, is the similarity with Porter's definition of strategy. Porter and Mintzberg agree that inherent in a strategy is the idea to gain competitive advantage over competitors. Polytechnics that outwit others in the implementation of PCS are able to develop and offer skills that industries require. Those that are outwitted, eventually attempt to improve the skills required by industries by benchmarking.

Thompson, Strickland and Gamble (2010: 6) viewed a strategy as consisting of "the competitive moves and business approaches that managers employ to grow the business, attract and please customers, compete successfully, conduct operations, and achieve the targeted levels of organisational performance." Freedman and Tregoe (2003: 15) defined a strategy as the framework of choices that determine the nature and direction of an organisation. Johnson and Scholes (in Fidler, 2002: 9) defined it more richly and comprehensively as 'the direction and scope of an organisation over the long term which achieves advantage through its configuration of resources within a changing environment, to meet the needs of the markets and fulfil stakeholder expectations."

Strategy can also be distinguished from a strategic plan. Thompson, *et al.* (2010: 41) explained that a strategic plan lays out a company's future direction and performance targets and consists of a strategic vision and objectives. A strategy

cannot be separated from a strategic plan – strategy precedes and gives direction to the plan, but merely having a strategy without a plan in place as to how to implement it is something of a pointless exercise. It follows, therefore, that curriculum effectiveness strategies will be embedded in strategic plans. Goldring (in Preedy, Glatter & Wise 2003: 4) argued that educational institutions should aim at adapting the environment by means of increasing joint action and cooperation with stakeholders. Among others, such activities include co-operation and partnerships with other educational institutions, parents, business, local communities, and coalitions with other relevant agencies and groups to achieve a common purpose. Another form of strategic response aims at redefining the environment, for example, by altering organisational goals and mission, or rebranding to attract a different student clientele (Preedy, Glatter & Wise, 2003: 5).

It is argued that organisations that fail to respond to their external environments, whether in stable or turbulent times, have low productivity levels and will fail to develop effective strategies. Glanz (2006a: 30) proposed the use of a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) to identify key constituencies such as teachers, paraprofessionals or parents so that the relevant strategies could be formulated. This would enable colleges to accentuate their strengths while minimising and working on their weaknesses. This presupposes the development of an effectively formulated strategy through competent principals' strategic skills that take into account environmental scanning.

As recently as 2009, there was widespread disgruntlement among Harare Polytechnic staff members as to why the college was not doing 'something' to retain the staff in the wake of high brain drain and deteriorating educational standards. To ameliorate the situation, the Ministry of Higher and Tertiary Education issued a circular number 1 of 2009, Production and Pricing Policy for Tertiary Institutions that allowed staff members to benefit financially from the services they render to the public on the ratio of 60% to the college and 40% to the concerned staff member (Production and Pricing Policy for Tertiary Institutions, Number 1 of 2009). This was a response to a crisis that resulted from poor strategy formulation and implementation by polytechnics in respect of retaining polytechnic staff.

1.6.3 Strategy Formulation

According to David (2001: 5), strategy formulation entails the following actions:

- formulation of a vision and mission statement;
- assessing the organisation's external environment as a means of identifying external opportunities and threats (external analysis);
- conducting an analysis of the organisation's internal environment as a means of identifying internal strengths and weaknesses (internal analysis);
- translating the mission statement into long-term goals;
- generating alternative strategies; and
- choosing particular strategies as a means of achieving the formulated long-term goals of the organisation.

Although these steps articulated by David (2001) are evident in polytechnic strategic plans, there is very little evidence with respect to implementation. What is evident in all polytechnics though, is the display of vision, mission statement and files written strategic plans 2000-2004, 2005-2009, 2010-2014, (The Ministry of Higher and Tertiary Education, 2010: 3) for instance, and not the actual translation of these into action, arguably due to lack of skills. The Ministry of Higher and Tertiary Education, Science and Technology Development usually insists more on developing the strategic plans than achieving the results.

1.6.4 Strategy Implementation

In this study, the concepts of strategy implementation and strategy execution are used interchangeably. Hrebiniak and Joyce (in Noble, 1999: 120) defined strategy implementation as a series of interventions concerning organisational structures, key personnel actions and control systems designed to control performance with respect to desired ends. This definition is comprehensive as it addresses major aspects of the whole polytechnic activities that support strategy evaluation (or control systems) in respect of how curriculum is effectively implemented.

Kotler (in Noble 1999: 121) defined strategy implementation as a process that turns plans into action assignments and ensures that such assignments are executed in a

manner that accomplishes the plan's stated objectives. Thus the strategic plan is operationalised or turned into market reality during strategy implementation; otherwise it remains a plan on paper. 'Market reality' in this regard refers to polytechnic curriculum that is implemented in response to environmental scanning of the desired skills.

Thus strategy implementation is part of strategic management, which is a continuous process in which "the conceptually-separate acts of formulating strategy and implementing strategy are integrated" (Thompson & Strickland, 2003: 448). Thus in this study, strategy formulation and strategy implementation are not taken as separate, but two parts that are intricately linked. In order to facilitate the successful implementation of strategy, top management teams need to recognise the importance of considering strategy implementation issues during the formulation of strategy (Freedman & Tregoe, 2003:109). This entails thinking about how the strategies will be financed and the type of human resources that will drive the strategy to reality. Strategies formulated, but not implemented serve little purpose (David, 2001: 6), and even the best-formulated strategy is irrelevant if it is not effectively implemented (Barney, 2002: 220).

In most Zimbabwean polytechnics, expensive strategic planning retreats are held every five years to come up with 'best' strategic plans. However, five years down the line, no meaningful change in effective curriculum implementation takes place and the same rhetoric is repeated. This raises the question: what happens to the good policy and strategic documents that were developed, sometimes with hired strategic planning consultants at great cost?

Strategy implementation is the most difficult component of strategic management process (David, 2001: 6, Thompson & Strickland, 2003: 19; Hrebiniak, 2005: xvii), and the majority of implementation efforts fail to bring about strategic success (Kaplan & Norton, 2004: 277; Hrebiniak, 2005: 3; Mankins & Steele, 2005: 64). This is probably because a lot of skill is required to implement strategy, which most organisations might be lacking.

Freedman and Tregoe (2003: 131) estimate that the ratio of strategies formulated to those completely and flawlessly implemented is ten to one. If this is to be applied

mathematically to the Zimbabwean situation, then 10% of the strategies formulated are actually successfully implemented. Part of the reason for this is that there is a disjunction between strategy formulation and strategy implementation, arguably because of lack of resources. More often than not, what is on strategic plans is not what is put into action. Resources are not usually adequate to implement strategic plans. The Ministry of Higher and Tertiary Education, Science and Technology Development's strategy is to retain lecturers in all institutions of higher learning. However this goal is hardly achieved as these institutions are affected by high staff turnover rates due to low salaries and unfavourable working conditions.

The implementation of strategy is often called the 'action phase' of strategic management process as it entails converting formulated strategy into action and then into strategic results (Thompson & Strickland, 2003: 356).

1.6.5 Strategy Evaluation

The end point of any strategy implementation is the evaluation of performance and initiating corrective adjustments (Thompson*, et al.*, 2010: 43). Evaluation describes how to assess the nature, impact and value of an activity through the systematic collection, analysis and interpretation of information with a view to making an informed decision. In polytechnics, the curriculum is skills-based, and therefore, the extent to which the acquired skills have been mastered is measured and evaluated. Thompson*, et al.* (2010: 43) argue that so long as the organisation's direction and strategy seem well matched to industry and competitive conditions, and performance targets are being met, the top management may decide to stay the course.

1.6.6 Strategic Leadership

Hitt, Ireland and Hoskisson (2007: 375) defined strategic leadership as, "the leader's ability to anticipate, envision and maintain flexibility and to empower others to create strategic change as necessary." Glanz (2006a: 111) maintained that principals who apply strategic leadership believe and engage in the following activities, among others: coordinating all functions and practices in the school so that everything works in harmony toward a common end, assessing the ability of the organisation to respond to social, political, or interpersonal crises and adjusting the organisation's mission to meet the newly developing exigencies.

1.6.7 Curriculum

Tanner and Tanner (1999: 158) define curriculum as "a plan or programme of all experiences which a learner encounters under the direction of the school." According to Beach and Reinhatz (1989: 97), a curriculum outlines, "a prescribed series of courses to take". The Commonwealth of Learning (2000: 12) viewed curriculum as a composite whole that includes the learner, the teacher, teaching and learning methodologies, anticipated and unanticipated experiences, outputs and outcomes possible within a learning institution.

Curriculum is the totality of learning experiences provided to students so that they can attain general skills and knowledge at various levels of learning (Marsh & Willis, 2003: 1). A child undergoes various levels of formal learning from early childhood learning or kindergarten through primary and secondary school levels to either polytechnic or university education. All these levels of learning denote curriculum that a child is subjected to throughout his or her formal learning time. Artherton (2009: 17) explained that the term 'curriculum' is used in a number of related ways:

- Firstly, it can refer to the overall content of what is taught.
- Secondly, it can refer to the underlying principles of the approach to teaching and learning.
- Thirdly, it can embrace both elements and refer to the overall 'what', 'why' and 'how' of teaching.

Finch and Crunkilton (1999: 11) defined curriculum as "the sum of the learning actions, activities and experiences that a student has under the auspices or direction of the school." A curriculum is a "plan or program of all experiences which the learner encounters under the direction of a school" (Tanner & Tanner, 1995: 158). Gatawa (1990: 8) defined it as "the totality of the experiences of children for which schools are responsible." All these definitions share a common idea that a curriculum encompasses both planned and unplanned activities that occur at an institution of learning. For purposes of this research, only planned curriculum is discussed.

1.6.8 Curriculum Implementation

The Commonwealth of Learning (2000: 55) explained that "curriculum implementation entails putting into practice officially prescribed courses of study, syllabi and subjects. The process involves helping the learner acquire knowledge or experience". University of Zimbabwe (1995: 8) also added that "curriculum implementation takes place as the learner acquires the intended or planned experiences, knowledge, skills, ideas and attitudes that are aimed at enabling the same learner to function effectively in a society." Stenhouse (1975: 4) argued that the teacher is the agent of curriculum implementation process. Viewed from this angle then, one might argue that most effective strategy for curriculum implementation revolves around teachers who are the most important resource.

1.6.9 Curriculum Strategy

Cheng (1994: 27) explained that curriculum is effective if it is congruent with teachers' competences, facilitates teacher development, helps students gain learning experiences which fit their characteristics, and produces expected educational outcomes, under the constraints of pre-existing characteristics such as national goals, school goals, school management, subject content, educational technology and resources. He submitted that evaluation of curriculum effectiveness may include process and outcome criteria such as teacher performance, student learning experiences and outcomes.

1.6.10 Curriculum Effectiveness

Cheng (1994: 27) explained that curriculum is effective if it can interact appropriately with teachers' competence to facilitate teacher performance, help students gain learning experiences which fit their characteristics, and produce expected educational outcomes, under the constraints of pre-existing characteristics such as national goals, school goals, school management, subject content, educational technology and resources.

In addition, for curriculum to be effective, it should be critical of the oppressive status quo and move to redress any social injustices that may be prevailing in a given community. Many theorists argued that schools are used by the dominant culture to

reproduce the powerful dominant classes of any society (Apple, 1979; Giroux, 1981a). In this sense, the Zimbabwean educational institutions are seen to be inculcating the values of the dominant class and orienting students to perpetuate the status quo. "Dominant culture is viewed as social practices that cement the central hegemonic values and interests that control the symbolic wealth of society" (McLaren, 1989: 172). Curriculum cannot be effective if hidden curriculum reflects a system of hegemony outside the formal system.

Hidden curriculum deals with the tacit ways in which knowledge and behaviour are constructed, outside the usual course materials and formally scheduled lessons. It is part of the bureaucratic processes by which the dominant ideologies and social practices are enforced in the school system (McLaren, 1989: 184). To this end, Apple (1975: 99) argues that the hidden curriculum serves to reinforce basic rules surrounding the nature of conflict and its uses.

Resistance to such oppressive educational systems may produce an effective curriculum as Giroux (1981a; 1983a; 1983b) pointed out that resistance theory was important insofar as it corrected the failure of conservative curriculum theories. Resistance to an inferior type of knowledge is paramount as knowledge is power, and the transmission of knowledge is part of the social distribution of power (Apple, 2000: 45). Freire (1971: 72) argued that, without true knowledge, individuals cannot be truly human. Zimbabwean polytechnic education needs to address the quality of knowledge if curriculum is to be effective and relevant.

Cheng (1994: 27) submitted that evaluation of curriculum effectiveness may include process and outcome criteria such as teacher performance, student learning experiences and outcomes. In the case of polytechnics, another way of observing a curriculum's effectiveness is, for example, when lecturers' competence is monitored through strict supervision of class attendance and timely feedback of student performance. Process and outcome criteria of curriculum evaluation referred to by Cheng (*ibid.*) occur, for example, when polytechnic students on industrial attachment are timeously visited with the required frequency of three times per student per year (HEXCO, 2007: 1).

1.6.11 Polytechnic Operating Costs

In order to yield above-average profits, Porter (1998: 36) proposes two important types of strategies for a leader:

- to become a cost leader by charging the same prices as competitors (or less) but operating with lower costs; and
- to become a differentiated value provider by operating with about the same costs as competitors but earning higher revenue by being able to charge higher prices than competitors for customers who value their particular form of differentiation.

Polytechnic fees are determined by the permanent secretary for Higher and Tertiary Education, Science and Technology Development and principals have no direct input, although they might give some recommendations (Manpower Planning and Development Act, Zimbabwe 1996: Sec. 28.02)

The government feels (Ministry of Higher and Tertiary Education, 1999: 8) that if the setting of fees is solely left to the discretion of polytechnics, the general public might be charged high fees that are unaffordable to the majority of the people, thereby making polytechnic education inaccessible to the poor. It is argued that staff members at each polytechnic are better placed to determine fees for their own institutions that respond to their external environments.

A blanket fee policy for all polytechnics might be insensitive to the different needs of each particular polytechnic. Perhaps, the way to go about it could be to grant them autonomy so that they can self-manage. Prices of services rendered by polytechnics to the public, such as, hire of halls and facilities, are not the same for each polytechnic because the Ministry of Higher and Tertiary Education has put in place a policy that stipulates that charges should be the same as those charged by local councils (Ministry of Higher and Tertiary Education, 1999: 9). The reason is that polytechnics should not charge fees too low or too high on services that municipalities also render. This sounds reasonable as a guide because if polytechnics charge fees higher than municipalities, they would lose prospective customers.

1.6.12 Polytechnics' strategic identity

Each polytechnic needs to develop a strategic identity that it strives to achieve as part of realising its vision through leadership in cost, product and customer relationship. Moore (2002: 33)expanded Porter's two categories into four 'value' disciplines that characterise an organisation's strategic identity namely: operational excellence, customer intimacy, product leadership and disruptive innovation.

Operational excellence corresponds closely with Porter's cost leadership. It focuses on an institution's ability to implement cost effective activities (Treacy & Wiersema, 2004: 16). Just in time (JIT) policy (Fernandez, 2008: 1) ensures operational excellence where institutions should hold little or no inventory beyond what is required for immediate production or distribution. This type of management consists of a combination of organisational techniques and practices of production aimed at serving the customers at the desired time and with the amount and the quality that is required. It is based on the following techniques: (1) elimination of all functions that are unnecessary for the operation and do not bring any added value to the customer (eliminate wastage); and (2) production of the different products, services and components at the correct time, in the desired quantity and with the maximum quality. JIT has been extended to include the concept of teaching, just in time teaching (JITT), which encourages students to be well prepared for class, and promotes active learning (Gavrin, 2006: 2). It helps a faculty to identify its students' strengths, weaknesses, and learning styles (Gavrin, 2006: 2). Thus operational excellence can be applied in polytechnics in the form of JITT.

Customer intimacy focuses on customer relationships and the customer experience as the central themes of decision making about product and service offering. This occurs when polytechnic products have superior quality that achieves customer intimacy and assists polytechnics to gain a larger market share (Treacy & Wiersema, 2004: 22). Product leadership strives to create best-in-class products, with an unbeatable combination of features, form and function. When there is an intimate relationship between customers and polytechnic products, product leadership would have been achieved (Treacy & Wiersema, 2004: 16).

Disruptive innovation creates a new category of customer, thereby changing the game to a new playing field. This is an innovation that makes a complicated and expensive product simpler and cheaper and thereby attracting a new set of customers. Online business courses, for example, now offer lower-end and more convenient access to courses that can improve students' credentials or help them switch careers, which is often precisely what the student customers want to accomplish by enrolling (Christensen, 2003: 2).

Polytechnics are not alone in striving to produce quality graduates; they also compete with universities, and therefore product leadership in this regard cannot be overemphasised. In Zimbabwean polytechnics, customer intimacy is now achieved by the launching of private-public partnerships (PPPs) (Harare Polytechnic Campus Chronicle, 2010: 1). This is done when students and polytechnic lecturers engage in a contract of producing goods and services for private companies. The quality of the goods produced is determined by the customer's satisfaction depicted by the frequency of coming back for similar or different products. Tracey and Wiersema's (2004: 16) four value disciplines may be used as a model to create a strategic identity for a polytechnic.

1.7 LIMITATIONS OF THE STUDY

Section 1.6 defined important terms relevant to the study.However, like other studies, this research may suffer from several limitations.

Firstly, despite the benefits that mixed methods researchers can take, this approach is a challenge in that it requires more work and financial resources and takes more time than singular methods (Molina-Azorín, 2011: 10). The practical difficulties to a large extent limited the current research. As noted in Chapters 1 and 4, the planned samples for both quantitative and qualitative studies were not met. The quantitative data was collected from 123 lecturers (instead of the projected 150) in five polytechnics in Zimbabwe. The qualitative interviews were conducted with five principals instead of six. In addition, because of the problems with access to targeted interviewees, it took longer time than expected to secure appointments with principals due to their busy schedules.

Secondly, for the qualitative component of this study, some interviews were not recorded due to the participants' anxiety about confidentiality, and further data analysis for those had to rely on the notes taken by the researcher. Although actions were taken to deal with this problem, such as writing down whatever the researcher remembered as soon as possible after each interview, some points were still unavoidably lost in such a situation.

Thirdly, the qualitative part of this thesis shares some common problems with other qualitative research. Prior literature indicates that qualitative research may have potential bias imposed by the researcher in the processes of conducting interviews and analysing data. The researcher in the current study recognises that this study is not free from subjectivity, and his experience, professional background, and bias might have influenced the research processes, such as sample selection, formulation of interview questions, and data coding. In order to reduce bias, the researcher tried to be as thorough and consistent as possible at the stages of data collection and data analysis. For example, interviews were carefully transcribed (if recorded) and the transcripts or notes were checked with interviewees so as to ensure that the collected raw data was unbiased and represented the interviewees' views accurately. Finally, data was coded following a consistent and systematic coding procedure.

A limitation of the quantitative approach is related to the dependent variables used in the quantitative models. Performance measures used in this study also had their limitations. As discussed in Section 5.3.7 of Chapter 5, CRADU curriculum standards were examples of dependent variables in analysing the PCS implementation. Despite the explicit rationales of using such standards to measure PCS implementation, this variable has its limitations, such as being too quantitative and historical in context and lacking the qualitative procedural element. Competences advocated by CRADU without proper lecturer orientation became too theoretical, lacking the intended thrust. However, given the restriction of time and the relevant weight of quantitative part in the mixed methods study, the researcher did not use other indicators to evaluate the implementation of curriculum strategy. It would be better if additional performance measures could be considered in future research.

1.8 RESEARCH METHODOLOGY

A mixed methods approach which includes both quantitative and qualitative research designs was used in this study. Specifically, this research utilised concurrent nested design (Andrew & Halcomb, 2009: 44), to confirm, cross-validate and corroborate study findings (Creswell, Hanson, Plano Clark & Petska, 2005: 229).

Quantitative research was used to answer questions about the relationships among measured variables with the purpose of explaining, predicting and controlling phenomena. Leedy and Ormrod (2005: 133) explained that qualitative research also called interpretative, constructivist, or post-positivist approach, is typically used to answer questions about the complex nature of phenomena, with the purpose of describing and understanding the phenomena from the participants' point of view.

The population consisted of 8 polytechnics principals, 1000 lecturers at the polytechnics, 2500 national diploma students and 20 training managers at the major companies who would potentially employ these students. The sample consisted of 5 principals, 150 lecturers, 12 training managers and 100 national diploma students. Purposive sampling was used to select principals and training managers while students were selected using simple random sampling technique (cf. 4.5.2).

The quantitative part of the mixed methods research employed a survey research design, utilising questionnaires to gather respondents' beliefs or opinions in polytechnics (Neuman, 2006: 43). A self-administered Likert-type questionnaire was used. Qualitative data were collected from five polytechnic principals by means of in-depth interviews.

SPSS was employed to analyse quantitative data emanating from the questionnaires. Qualitative information from in-depth interviews with principals was tape-recorded accompanied by some brief note-taking. Tesch's steps for open coding were used to analyse the data (Tesch, 1990: 142).

1.9 CHAPTER DIVISION

This section presents a summary of each of the first five chapters of this thesis.

Chapter 1: Introduction and Background: This chapter introduces the research problem; outlining statement of the problem and aims of the study and research questions, importance of the study, limitations of the study. It also presents the definition of important terms, research methodology, and the chapter division.

Chapter 2: Polytechnic Curriculum Strategy: The major focus of this chapter is to highlight the importance of curriculum strategy implementation, key theorists that contributed to curriculum development, competency-based educationand reconceptualisation of curriculum.

Chapter 3: Strategic Leadership in Curriculum Strategy: This chapter focuses on the relationship between leadership and curriculum strategy implementation. Specifically, strategic leadership and its role in curriculum strategy implementation is discussed.

Chapter 4: Research Design and Methodology: This research makes use of quantitative and qualitative design and these are discussed in this chapter including the data collection instruments, namely questionnaires and in-depth interviews and the ethical considerations.

Chapter 5: Data Presentation, Analysis and Discussions: In this chapter data is presented in frequency tables and descriptive statistics. Tesch's open coding system was used to analyse qualitative data while SPSS is used to analyse quantitative data.

Chapter 6: Summary of Findings, Conclusions and Recommendations: This chapter gives a summary of the study and draws conclusions to answer the research questions from the analysis of the data collected. It makes recommendations for addressing the implementation of polytechnic curriculum strategy as well as recommendations for further research, based on the findings of the study.

1.10 CHAPTER SUMMARY

This chapter has outlined the introduction and background to the study, problem statement, aims, research objectives and questions. The limitations of the study have been highlighted and explained. The research has highlighted the concurrent nested mixed methods research design. The quantitative and qualitative nature of

the study and how these methodologies link with the positivist and post-positivist paradigms has been explained. The choice of data collection instruments of the interview schedule and questionnaire has been justified. A target population of principals, lecturers, students and training managers has been outlined. Purposive, stratified and simple random sampling techniques for principals, lecturers, students and training managers were identified. SPSS and Tesch's open coding system was indicated as the method to be used to analyse quantitative and qualitative data respectively.

CHAPTER 2

POLYTECHNIC CURRICULUM STRATEGY

2.1 INTRODUCTION

The purpose of this chapter is to discuss the concept of polytechnic curriculum strategy (PCS) underpinned by curricularists such as William Pinar, Michael Apple, Paulo Freire, Peter McLaren, Henry Giroux, Hebert Kliebard, Antonio Darder, Patrick Slattery, Mokubung Nkomo and others. The chapter begins with the discussion of a theoretical framework where complex and social cognitive theories are explained in relation to their relevance to effective PCS implementation. Thereafter, the context of curriculum is discussed and criticised, including the *currere* approach, forms and the models of curriculum planning in relation to Zimbabwean polytechnics' relevance to industry. Efforts to improve Zimbabwean PCS are contextualised and discussed. Key aspects of curriculum development such as politics of curriculum, competency-based education and reconceptualisation of curriculum are discussed in detail in relation to the extent to which principals effectively implement polytechnic curriculum. The chapter also seeks to answer the question: To what extent are Zimbabwean polytechnic principals competent in employing strategic leadership skills to craft and implement PCS, given their level of autonomy and the civil service policies that govern them?

2.2 THEORETICAL FRAMEWORK

There are many theories that are used to elucidate various research problems. For the purposes of this research, the theories that underpin this research are the complexity and social cognitive theories.

2.2.1 Complexity Theory

According to Joslyn and Rocha (in Uden, Richardson &Cilliers, 2001: 56), a complex system is "... any system consisting of a large number of interacting components (agents, processes, etc.) whose aggregate activity is non-linear (not derivable from the summations of the activity of individual components), and typically exhibits hierarchical self-organisation under selective pressures."

In simple terms, a complex system can be viewed as a system that consists of a large number of units that are highly interactive (Uden, Richardson &Cilliers, 2001: 56). The following are three basic characteristics of complex systems (Uden, Richardson &Cilliers, 2001: 57).

2.2.1.1 The incompressibility of complex systems

Complex systems are incompressible, that is, it is not possible to have a holistic view of a complex system that is less complex than the system itself "without losing some of its aspects". According to Cilliers (1998: 4), incompressibility is "probably the single most important aspect of complex systems when considering the development of any analytical methodology, or epistemology, for making sense of such systems."

Considering the separate functioning of individual parts of a system such as departments, is rather problematic as this overshadows the interaction between these parts or departments of an organisation. Polytechnic departments such as the human resources, accounts and administration may not function independently as it is the interaction between these departments that oils the machinery of polytechnic curriculum strategy (PCS).

"What appears to exist autonomously or as such is actually the result of a process of taking into consideration and, inevitably, leaving out of consideration. Complexity science tells us that everything is interconnected" (Uden, Richardson &Cilliers, 2001: 57). It is argued that the boundaries of a system that analysts talk about are rather imaginary and only satisfy "our need for a bounded description rather than a feature of the system itself. Hard enduring boundaries do not exist in nature; all perceived boundaries are transient given a sufficiently broad time frame" (*ibid.*).

2.2.1.2 System memory or history

According to Cilliers (1998: 4), "a complex system has memory or history captured at both the micro- (e.g. personal experiences, personal opinions, worldview) and macroscopic (e.g. culture, ritual, value system) levels." In this regard, system history plays a significant role in defining the current state of the system as well as the

trends that evolve in the system. Polytechnics, as part of the Ministry of Higher and Tertiary Education, Science and Technology Development, have their historical development captured in principal, lecturer and support staff experiences as well as their culture (way of delivering lessons, industrial attachments, conducting HEXCO examinations, and interaction with NAMACO and CRADU) and values system (level of pass rates and quality of the graduates).

2.2.1.3 Complex systems are characterised by chaos and self-organisation

Richardson, Mathieson and Cilliers (in Uden, Richardson &Cilliers, 2001: 57) stated that system evolution is characterised by being sensitive to small disturbances that emanate from the environment and this is what they refer to as "deterministic chaos". On the other hand, complex systems surprisingly, are unbelievably insensitive to large disturbances most probably due to "self organisation or, anti-chaos". A whole range of possibilities in between is also possible. Aspect 5 of Figure 2.1 clearly indicates this. Similarly, Tetenbaum (1998: 24) found seven trends that help to elucidate why complexity theory has been popular and successful:

- Technology;
- Globalisation;
- Competition;
- Change;
- Speed;
- Complexity; and
- Paradox.

Tetenbaum (*ibid.*) argued that, "The new world is full of unintended consequences and counter intuitive outcomes. In such a world, the map to the future cannot be drawn in advance. We cannot know enough to set forth a meaningful vision or to plan productively." Polytechnics as complex organisations should be characterised by state-of-the-art technology if they are to meet changing needs of industry. As complex orgainsations, polytechnics operate in the global village where skills imparted to students meet international standards, failure of which will indicate a mismatch between societal expectations and curriculum offered. Zimbabwean

polytechnics, for example, are expected to train students in skills needed to satisfy the mining and agricultural sectors of the economy.

Similarly, Marion and Bacon (2000: 72) viewed complex systems as "robust, involving multiple, often redundant chains of interaction and causation…." Organisations such as polytechnics portray chains of interactions with interested sister organisations such as industries and National Manpower Advisory Council that affect the operations of polytechnics. This makes polytechnics complex organisations as they cannot operate in isolation and be effective.

Marion and Bacon (*ibid.*) identified three key characteristics of complex systems.

- Firstly, the whole has more value than the sum of the parts, which means that reducing a system to its individual parts is not much of an aid in having a full picture of an organisation's processes and outcomes (Tetenbaum, 1998: 24). Individual departments in the Ministry of Higher and Tertiary Education, Science and Technology Development that govern polytechnics may not acknowledge the full value of polytechnic graduates. The interaction of different departments in the ministry work together in creating the desired quality of the polytechnic graduate.
- Secondly, complex organisations produce outputs that cannot necessarily and solely be from the products of their inputs. Zimbabwean polytechnics should provide skills 'outside the box' and address challenges facing the economy, such producing quality products for exports and return Zimbabwe dollar and high unemployment. There might arise many drastic challenges that need urgent attention before the next round of curriculum review.
- The third point clarifies this by noting that, complex organisations display behaviour that is neither explicitly predictable nor unpredictable. This is what has made complex organisations acquire the popular description of the 'edge of chaos' (Stacey, 2011: 151). It is surely not predictable how effective PCS might be given the interplay between various organs of the stakeholders that give rise to the implementation of PCS.

Complexity and the "edge of chaos" bring a new paradigm to organisational management, change and transformation (Uden, *et al.*, 2001: 58). It calls for an understanding that systems are relatively stable until a certain critical point is reached, in which case the edge of chaos is realised, a so-called "bifurcation point" (Smith &Humphries, 2004: 94). It is argued that Zimbabwean polytechnics produced graduates that were no longer sensitive to the needs of the Zimbabwean society (Nziramasanga, 1999: 420), and at this point an "edge of chaos" had been reached. Chaos is witnessed in the sense that though the graduates possess attractive diplomas, higher national diplomas and degrees, they are not absorbed by Zimbabwean industries as well as failing to be their own entrepreneurs. This creates chaos as their education seems not useful to them and society at large.

Holbrook (2003: 1) aptly summarised complexity theory by positing that:

> When such insights are applied to real-world systems – whether ant colonies, evolutionary biology, business organisations, or brand-positioning strategies – they shed light on dynamic processes of adaptation and survival. A business comes to be regarded as a dynamic open complex adaptive system (DOCAS), composed of inter-related parts, interacting with its environment, subject to resulting feedback effects, evolving over time adaptively to fit the pressures imposed on it, perhaps attaining a sustainable advantage, and in the process generating certain emergent phenomena.

The following diagram encapsulates the theory which has been discussed in the preceding sections.

Figure 2.1:Diagram of complexity theory
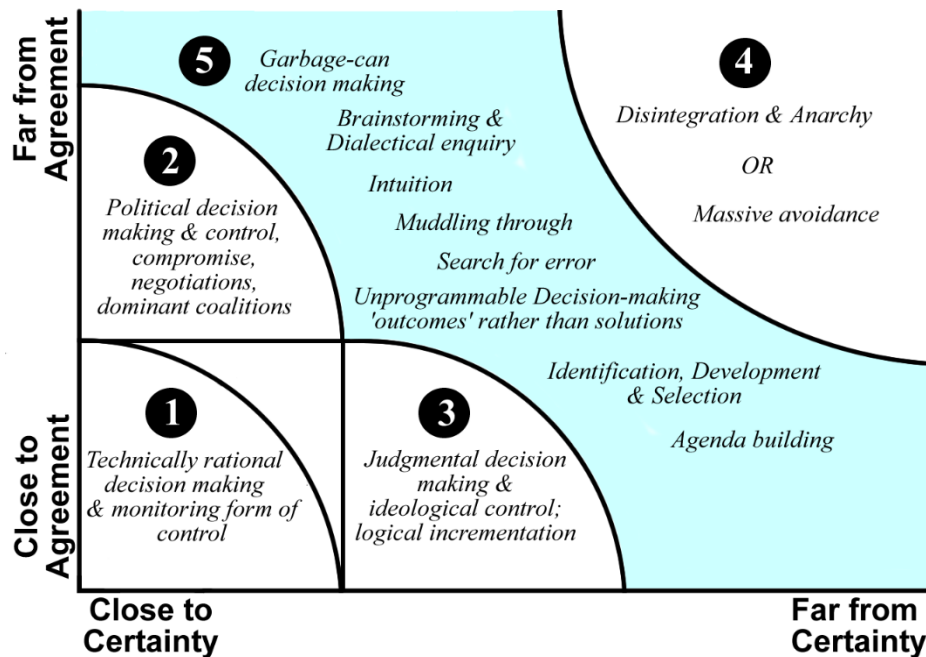
Source: Stacey (2011: 151)

Area 5 is the area with which we are most concerned, although in the current thesis. Area 2 has a significant impact on decision-making.

2.2.2 SOCIAL COGNITIVE THEORY

Social Cognitive Theory (SCT) provides a comprehensive framework for understanding how cognitive and environmental influences affect human behaviour. Of major significance in SCT is the principle of reciprocal determinism that concerns itself with the relationship between behaviour, environment and personal factors, which are impacted by affective, biological and cognitive events. The major proponent of social cognitive theory was Bandura (1986) whose work focused on two main constructs, namely triadic reciprocality and self-efficacy.

SCT's triadic reciprocality illuminates how individuals within organisational settings learn, think and behave, and is therefore, a valuable framework for understanding the reciprocal relationships that bring about effective polytechnic curriculum strategy (PCS). In a nutshell, this theory posits that an individual's motivation to accomplish something is determined by personal, behavioural and environmental factors (the triad).

If we examine these factors in terms of polytechnic lecturers and principals, personal factors would include qualifications, andragogic and pedagogic skills, and leadership ability, while the environmental factors would be the educational and political systems, the geographical areas where the polytechnics are situated, and the financial constraints within which the polytechnics operate. These factors together would impact the behaviour and motivation of the lecturers and principals. For example, low salaries might impact the motivation of lecturers who then do not give of their best in teaching their students, and lack of financial resources would frustrate the principals who cannot buy all the materials, machinery and laboratory equipment they need to provide students with an effective learning experience. If physical needs of polytechnics are not adequately provided, this would undermine the effective implementation of the PCS. This aligns well with the resource-based view discussed later in this chapter.

The behaviour of lecturers is a function of their feelings and how they motivate themselves in achieving set tasks. This depends on perceptions of self-efficacy. "Perceived self-efficacy is concerned not with the number of skills that you have, but with what you believe you can do with what you have under a variety of circumstances" (Bandura, 1997: 37). Furthermore, "Self-efficacy beliefs work jointly with other determinants within SCT to govern the thought, action, and motives of human beings" (*ibid.*: 34), and "affect life choices, level of motivation, quality of functioning, resilience to adversity and vulnerability to stress and depression". The level of self-efficacy will result in a level of confidence where an individual believes that they can or cannot accomplish something. Self-efficacy is, in effect, "a judgment of one's own confidence; self-esteem is a judgment of self-value" (Pajares, 2000: 7). It may follow that a principal or lecturer who is not confident in his or her work and has low self-esteem is likely to achieve below the expected standard of instructional delivery, while lecturers and principals who exhibit high levels of confidence in their own capabilities would probably eventually succeed in implementing the PCS.

Bandura (1997: 76) posited that, "People act on their beliefs about what they can do, as well as on their beliefs about the likely outcomes of performance." Thus, if the belief to succeed is very strong, lecturers and principals will act positively towards achieving their anticipated goals, but if they judge that they lack the capabilities to achieve them then the goals will not be met. An example is that principals might

judge themselves as lacking capabilities to form private-public partnerships with mobile companies in areas of electronic engineering thereby missing a chance to create revenue and improve relevant skills. This could be exacerbated by the differences in the resource base of polytechnics and the quality of graduates produced because of the choices different principals make in implementing the PCS.

When lecturers doubt their capabilities to manage polytechnic students or achieve a good pass rate, they require considerable explicit feedback from fellow lecturers or principals (the people in their environment) as compensation. An important assumption of this study is that polytechnics function better when lecturers do not depend on such explicit feedback and are alternatively empowered by their self-efficacy beliefs to manage the challenges of their lecturing profession. It is clear from this discussion of SCT that the reciprocal impact of personal factors, environmental factors and behavioural factors would result in effective implementation of curriculum strategy if self-efficacy and confidence were strong.

2.3 CURRICULUM AS A POLITICAL DISCOURSE

This section discusses the curriculum's political landscape within which polytechnic principals operate. The discussion is in the context of reproduction theory, ideology as a concept of curriculum, the hidden curriculum, resistance theory and pedagogy and practice.

2.3.1 Reproduction Theory

The first step in the effort to understand curriculum as a political text involved the concept of reproduction or correspondence. Bowles and Gintis (1980: 55) viewed schools as operating in the stratum of superstructure, a stratum determined by society's economic base. Strike (1989: 26) portrays this relationship diagramatically as depicted below:

Figure 2.2: The educational institution in the superstructure influenced by economic base of society

Consciousness
Superstructure
Institutions
Relations of production
Base
Material productive forces
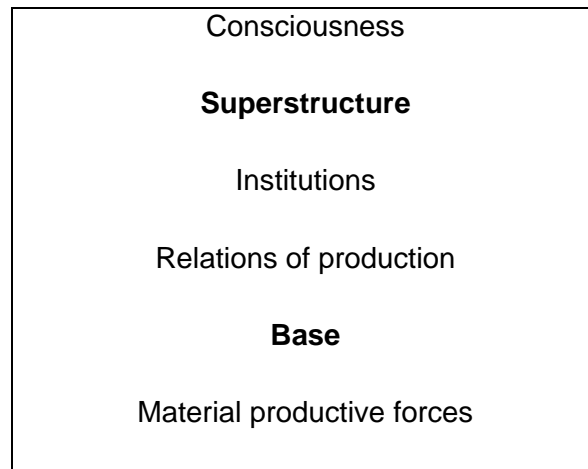
Source: Strike (1989: 26)

Causality occurs in one direction, from base to superstructure. Elements in the base are used to explain the existence of the elements in the superstructure (Strike, 1989: 26).Bowles and Gintis (*ibid.*) argued that schools prepare students to enter the current economic system through correspondence between school structure and the structure of production. The structure of social relations in education not only inures the student to the discipline of the workplace but develops the types of personal behaviour, self-presentation, self-image, and social class identifications that are the crucial ingredients of job adequacy (Pinar & Bowers, 1992: 163). The education received by students of polytechnics, points to their competencies which are judged relevant or irrelevant by the milieu.

Specifically, the social relationships of education manifest in many respects. These are relationships between administrators and teachers, teachers and students, students and students, and students and their work: this replicates the hierarchical divisions of labour. Hierarchical relations are reflected in the vertical authority lines from administrators to teachers to students (Pinar & Bowers, 1992: 164). Alienated labour is seen in the student's lack of control over his education, the alienation of the student from the curriculum content, and the motivation of school work through a system of grades and other external rewards rather than the student's integration with the learning process or the knowledge of the educational "production process" (Bowles & Gintis, 1976: 131). Relying on this principle of correspondence or

reproduction, Apple (1979) and Giroux (1981a) argued that schools functioned to reproduce the class structure of the workplace. Politically, colleges train polytechnic students to perpetuate the Zimbabwean economic classes. That explains why industries represented by NAMACO dominate curriculum development to continue to "reproduce" the same kind of people who oppress the disadvantaged masses once oppressed by Rhodesia or colonial Zimbabwe. The role of the principal should be critical of this oppressive system, lead curriculum reform and influence curriculum development that addresses political imbalances rather than 'reproduce'the same dominant class of bourgeoisie.

2.3.2 Ideology as a Concept of Curriculum

A second concept imported from other fields aided politically oriented curriculum scholars to advance their arguments. Althusser's (1971) understanding of ideology provided another major concept in curriculum scholarship. McLaren (1989: 176) explains:

> Simply put ideology refers to the production of meaning. It can be described as a way of viewing the world, a complex of ideas, various types of social practices, rituals and representations that we tend to accept as natural and as common sense. It is the result of the intersection of meaning and power in the social world. Customs, rituals, beliefs and values often produce within individuals distorted conceptions of their place in the socio-cultural order and thereby serve to reconcile them to that place and to disguise the inequitable relations of power and privilege; this is sometimes referred to as ideological hegemony.

Althusser (1971: 11) posited that institutions were strongly viewed as "ideological state apparatuses" which functioned to subjugate the working class. Giroux (1983a: 81) interpreted the Althusserian concept of ideology for curricularists as follows::

> First, ideology has a material existence: rituals, practices, and social processes that structure the day-to-day workings of schools… Second, ideology neither produces consciousness nor a willing passive compliance. Instead it functions as a system of representations, carrying meanings and ideas that structure the unconsciousness of students.

Curriculum itself became conceptualised as an ideological mystification (Apple, 1990a; Giroux, 1981b: 10; 1981c: 99). Both Apple and Giroux described how the content and form of the curriculum were ideological in nature (Apple, 1990a; Giroux, 1981c: 100). Though Zimbabwe attempted to adopt the socialist ideology in the early 1980s just after independence, it failed to sustain it in educational institutions as this would require vast resources to include the poor students.

Even though Zanu PF, the Zimbabwean ruling political party, tried to be socialist and wean itself from the zeal of dominance and hegemony, the ideas and culture associated with the dominant class were argued to be the ideals and content of schooling. Dominant culture is described as those "social practices and representations that affirm the central values, interests, and concerns of the social class in control of the material and symbolic wealth of society" (McLaren, 1989: 172).

By the early 1980s, the largely economic version of reproduction was being criticised by many of the same scholars who had advocated for it in the 1970s. In Zimbabwe the reproduction theory failed to be neutral and reproduced many people who found their way into the dominant class in all spheres of Zimbabwe life. Educational institutions are the chief culprits through politically biased curriculum. Though the dominant class attempted to be Zanu PF, the values and aspirations remained Eurocentric and alien to African values. Later on in the early 1980s, reproduction theory was criticised for being deterministic and simplistic (Giroux, cited in Olson, 1981: 2), as lacking an accurate understanding of a cultural analysis (Apple, 1980: 56), as lacking an adequate theory of agency (Strike, 1989), and as basically describing human behaviour and natural processes as though they are machines or mechanistic in nature (Giroux, 1983a). Later on, Bowles and Gintis (1980: 53) were self-critical:

> The most critical [problem] is simply this: by standing in our approach as the only structural link between education and the economy and by its character as an inherently harmonious link between the two, the correspondence principle forced us to adopt a narrow and inadequate appreciation of the contradictions involved in the articulation of the educational system within the social totality.

2.3.3 The Hidden Curriculum

The hidden curriculum, first made popular by Jackson (1968), was another important conceptual tool for politically-oriented curriculum scholars. The concept refers to those unintended but quite real outcomes and features of the schooling process (McLaren, 1989: 183). "Overt" curriculum, or the planned curriculum, including objectives should be distinguished from the hidden curriculum.

Hidden curriculum is defined by McLaren (1989: 184) as dealing with:

> the tacit ways in which knowledge and behavior get constructed, outside the usual course materials and formally scheduled lessons. It is part of the bureaucratic and managerial press of the school; the combined forces by which students are induced to comply with the dominant ideologies and social practices related to authority, behavior and morality.

Apple (1975: 99) observed hegemony as central and fundamental to the context of hidden curriculum, another fundamental conceptual tool for politically-oriented curriculum scholars, when he argued that:

> The hidden curriculum in schools serves to reinforce basic rules surrounding the nature of conflict and its uses. It posits a network of assumptions that, when internalised by students, establishes the boundaries of legitimacy. This process is accomplished not so much by explicit instances showing the negative value of conflict, but by nearly the total absence of instances showing the importance of intellectual and normative conflict in subject areas. The fact is that these assumptions are obligatory for the students, since at no time are the assumptions articulated or questioned.

Gramsci (1972) concurred with Apple (1975) that hegemony was a major concept employed in understanding curriculum as a political tool. Carnoy (in Apple, 1982a: 86) argued that "the role of the superstructure in perpetuating class and preventing the development of class consciousness." Gramsci (1985) demonstrated hegemony in two senses. First, hegemony is a process of domination in which the ruling class

of the day such as Zanu PF in Zimbabwe, exercises political control through its intellectual and moral leadership over allied classes. Second, hegemony uses force and ideology in the reproduction of class relations (Aronowitz & Giroux, 1985: 88). To this end, hegemony is understood to occur by using force to shape human consciousness. Any ruling class which in most cases controls the reigns of power, once in a while, may find it needs to be coercive to achieve some of its dominant goals.

The concept of ideology portrayed teachers and students as perpetuators of reproducing the ruling class. Hegemony seemed to suggest that there was no escape possible from this menace embedded in ideology, as this was, "forged into the cognitive chains which bind the minds of the working class" (Strike, 1989: 137). Thus the reproduction theory explained how the ruling class was reproduced by the curriculum and promoted the continuance of the status quo. Zanu PF, though a liberation Zimbabwean political party which took over hegemonic and dominant views on curriculum, was no better than whites even if they were representing the views of black majority. Curriculum ideological hegemony continued in another guise. At one given instance, the researcher observes that the ruling party wanted to impose a one-party state; an idea which was rejected by the opposition political parties of the 1990s.This criticism of the reproduction theory gave way to resistance theory.

2.3.4 Resistance Theory

Even if several authorities tried to resist the reproduction theory in curriculum in other countries in Zimbabwe, no one attempted to resist the dominance of the ruling party in curriculum development. Zanu PF has been cosmetic in reviewing the curriculum inherited from the European colonialists. In a way Zimbabweans are still subjected to a conservative version of white education implemented by black Zimbabweans. Elsewhere, Willis (1981) introduced the concept of resistance to counter the tenets of the reproduction theory. He observed that the working class boys he studied resisted both the official and hidden curriculum of their English secondary school. The origins of this resistance "are in the shop-floor cultures occupied by their family members and other members of their class" (Giroux, 1983b: 283). Willis' (*ibid*) concept of

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resistance allowed politically-oriented scholars to view the process of reproduction as contestable, thereby correcting the non-dialecticism of the Bowles and Gintis' (1976) reproduction theory.

Giroux (1983b) pointed out that resistance theory was important insofar as it corrected the failure of both conservative and radical curriculum theory. In radical curriculum theory, there had been an "under emphasis on how human agency accommodates, mediates and resists the logic of capital and its dominating social practices," including school curriculum and instruction (Giroux, 1983b: 282). As discussed above, Giroux (*ibid*) characterised the reproduction theory as a "discourse of despair," as it ignored the pedagogical possibilities of human thought and enlightened action (Pinar & Bowers, 1992: 170).

According to Aronowitz(in Giroux, 1981a: 31), radical educators should begin to concentrate on the "cracks and disjunctions created by oppositional forces". Doing so would permit the contestation of power in the schools. Giroux (*ibid*) asserted that struggles can be waged over administrative and curricular issues. Reproduction failed to inspire such a struggle; it was a "myth of total domination" (Giroux, 1981a: 99). In polytechnics, National Strategic Studies (NSS) as a subject was introduced in 2004 to counter what Zanu PF regarded as lack of patriotism by the born-free youths who did not experience the war of liberation (1963-79). Basically, the curriculum content of NSS encompasses history of Zanu PF, land reform programme and entrepreneurship. In the case of Zimbabwe,reproduction theory is epitomised by the introduction of NSS and one can argue that the introduction of this subject is strategic, but to whom? Polytechnic principals were privy to the development of NSS curriculum but did nothing to avoid hegemonic tendencies of the dominant class in curriculum planning.

It is not easy for principals to resist practically a type of Zimbabwean polytechnic curriculum, as advocated by Apple (1981: 35) who argued that it is not enough simply to conduct research into resistance; one must actually resist, in practice.

Despite resistance, Apple (*ibid*) concluded that stopping reproduction seems a nightmare and continues "as long as the penetrations into the nature of work and

control generated by working-class youths and their parents are unorganised and unpoliticised" (Apple, 1982b: 108). Giroux (1983a: 111) called for a reformulation of the relations among ideology, culture, and hegemony, one that would "make clear the ways in which these categories can enhance our understanding of resistance as well as how such concepts can form the theoretical basis for a radical pedagogy that takes human agency seriously"

Most Zimbabwean polytechnics are manned by artisans and technicians who have little or no pedagogical training although Giroux (1983a: 111) recommended the development of radical pedagogy based on the ideas of Paulo Freire in 1970 and 1971 (Pinar & Bowers, 1992: 171). "At the core of radical pedagogy," Giroux (1981b: 24) insisted, "must be the aim of empowering people to work for a shift from the status quo in the social, political, and economic structure that constitutes the ultimate source of class-based power and domination." Giroux noted, however, that resistance theory quickly becomes a transitional concept and a stepping stone to critical pedagogy. Principals, who are at the core of curriculum implementation, ought to influence the implementation of critical pedagogy to resist the status quo.

2.3.5 Whose Knowledge is it?

The concept of knowledge in any country is a highly contested one with many interested parties trying to battle for supremacy. The control of knowledge has neverbeenanywhere near neutrality.It never exists in an empiricist, objective relationship to the real. Knowledgeispower, and the transmission of knowledge is part of the social distribution of power (Apple, 2000: 45). What the Rhodesian colonialists called 'knowledge' is different from what independent Zimbabwe calls knowledge. Colonial education was meant to create a subservient society that would assume the role of second class citizen. However, despite the commendable growth in education, economic and political factors have eroded the educational gains that were achieved in the first two decades of independence. Underfunding of education due to the economic adjustment programmes of the 1990s and early 2000s was exacerbated by the economic meltdown that followed the land redistribution programme initiated by the ruling party in 2000. Arguably, land redistribution created

an economic crisis that negatively affected the education sector (Shizha & Kariwo, 2011: ix).

The power of knowledge has to struggle to exert itself in education (Apple, 1993: 221). Education is deeply embedded in cultural politics. The curriculum is never simply a neutral assemblage of knowledge, somehow appearing in the texts and classrooms of a nation. It is always part of a selective tradition, someone's selection, and some group's vision of legitimate knowledge. It is produced out of the cultural, political and economic conflicts, tensions, and compromises that organise and disorganise a people (Apple, *ibid*).

In every country what counts as knowledge, the ways in which it is organised, who is empowered to teach it and what counts as an appropriate display of having learned it, are all political games which are part and parcel of how dominance and subordination are reproduced and altered in a society (Bourdieu, in Apple, 1993: 221). A worthwhile, effective national curriculum would also require the creation of new social and intellectual connective tissue (Bourdieu, *ibid*). For instance, the content and pedagogy of a polytechnic lecturer education would have to be closely related to the content and pedagogy of the polytechnics' curriculum. The only problem in Zimbabwe is that polytechnic lecturer education is arbitrary and rudimentary. The content and pedagogy and style of setting examinations would have to be linked to those of the curriculum and lecturer education. In the case of Zimbabwe, such connections do not exist as Smith, O'Day and Cohen in Apple (1993: 226) also observed in one their researchers.

This disconnection between HEXCO, NAMACO and industry is a cause for concern as students are subjected to a curriculum divorced from the aspirations of society. This is because it lags behind the developments occurring globally. Polytechnic students who are doing Information Technology, for example, are still being subjected to basic traditional concepts at the expense of new software that is being introduced in the market on a monthly basis. Higher National Diploma students in accounting are still doing mechanical manual problems when the industry has already acquired new accounting software that helps in the preparation of financial statements.

Not many people may unanimously agree with a diagnosis of what educational institutions actually do. This latter position contains a very important insight since it recognises that behind Spencer's famous question, "What knowledge is of most worth?" There lies another more contentious question, "Whose knowledge is of most worth?" (Apple, 2000: 45).

Knowledge is socially constructed and therefore all knowledge 'bears traces of the social order of a community (Moore, 2007: 18), but authors differ in their relative positioning in terms of weak or strong versions of social constructionism (Schwandt, in Atweh & Singh, 2011: 3). Weak versions of social construction or social realist perspectives suggest that:

> Knowledge is produced socially, but simultaneously possessing the capacity to *transcend* the social conditions under which it is produced… The emergent property of knowledge is itself intrinsically *social;* it is something that *people* do in a particular, socially organised way. It depends upon a distinctive construction of values, principles and social procedures that became institutionalised and achieved sufficient autonomy from traditional sites of power such as the state and religion, to establish itself as a culture and model of social organisation in its own right (Moore, 2007: 18).

Freire (1971: 72) argued, "For apart from inquiry, apart from praxis, individuals cannot be truly human. Knowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry human beings pursue in the world, with the world, and with each other."This is a virtue Zimbabwe needs to cultivate in its own polytechnic education if its education is to be relevant. Praxis, for the sake of it, is meaningless unless it is accompanied by inventions that are geared to responding to the societal problems of Zimbabwe.

Freire (1998a: 53) further asserted that, "Human existence is, in fact, a radical and profound tension between good and evil, between dignity and indignity, between decency and indecency, between the beauty and the ugliness of the world." The un-accommodative and undemocratic nature of education, especially polytechnic education, has resulted in students settling for an inferior type of education whose

skills are not relevant to the needs of the Zimbabwean society. To this end, it is argued that:

> An unwillingness to deal with deep moral questions within educational institutions and the larger society has resulted in the bureaucracy of schools, where educational institutions are ruled by top-down expedient policies, which do little to address the larger social and institutional conditions, of which social problems are symptomatic (Darder, 2013: 15).

Just as knowledge legitimises power, it also derives a great deal of its own legitimation from state decisions. The decisions on what is to be learnt and taught at schools or colleges, what sort of knowledge is required to qualify and select candidates for public offices and professional careers, what sort of research should be funded by the fiscus are left in the hands of politicians. All decisions are subject to state authority. Only knowledge that aligns itself with aspirations of the dominant class of society is typically given priority over other knowledge and is accorded special standing and legitimacy. The close and intricate relationship between knowledge and power manifests itself as an instrument of reciprocal legitimation (Weiler, 2001*: 23*). Thus the area of knowledge is a highly contested political battlefield among stakeholders, resulting in dominance by the ruling class. What role should principals then play in ascertaining the quality of knowledge taught in polytechnics? This is a question every Zimbabwean principal ought to strive to answer in order to make curriculum relevant to every student, from remotest parts of Zimbabwe to those in affluent upmarket surbubs of Harare and Bualwayo.

2.3.6 Pedagogy and Practice

Curriculum scholars shifted their attention from reproduction and resistance to radical or transformative pedagogy. Aronowitz and Giroux (1985: 142) discussed reproduction and resistance insofar as they lead to radical action. In curriculum theory, what is necessary is a "language of possibility." They further proposed that educators must become transformative intellectuals rather than "skillful technicians" What was necessary was to "link emancipatory possibilities to critical forms of leadership by rethinking and restructuring the role of curriculum workers" (Aronowitz & Giroux, 1985:142). Linking Zimbabwean curriculum development with radical

pedagogy is highly problematic as Zimbabwean curriculum authorities lack competence in any form of pedagogy as well as the political muscle to manoeuvre.

Apple (1986: 204) urged critical scholars, teachers, students, and parents to engage in political and pedagogical action. He argues that the effort to democratise the curriculum must be a collective one involving all stake holders in addition to educational professionals:

> [Critical scholars] need to be closely connected to feminist groups, people of colour, unions, and to those teachers and curriculum workers who are now struggling so hard in very difficult circumstances to defend from rightist attacks the gains that have been made in democratizing education and to make certain that our schools and the curricular and teaching practices within them are responsive in race, gender and class terms. After all, teaching is a two-way street and academics can use some political education as well (Apple, 1986: 204).

As recently as 2013, Zimbabwe successfully completed its home-grown constitution, replacing the 1979 colonial Lancaster House British brokered constitution. It is in this new constitution that an attempt at a radical pedagogy can be made possible, borrowing from McCarthy and Apple's (1988: 30) call for theoretical work that demonstrates how race, class and gender interconnect, and how economic, political, and cultural power expresses itself in education. This is because in this new constitution, Zimbabweans are united on every thematic issue including curriculum issues. There should be a shift in strategies for fundamental change in curricular content, pedagogical practices and social structures (McCarthy & Apple, 1988: 32).

Fundamental to these issues is the concept of praxis, which involves "not only a justifiable concern for reflective action, but thought and action combined and by a sense of power and politics. What is taught in schools should be understood if our daily problems are to be solved" (Beyer & Apple, 1988: 4). Praxis means "critical reflective practices that alter the material and ideological conditions that cause the problems we are facing as educators in the first place" (Beyer & Apple, 1988: 4).

2.3.6.1 Paulo Freire's critical pedagogy

Ceteris paribus, the greatest challenge that Zimbabwean polytechnics are facing, is the kind of pedagogy students are subjected to. It followeda European type of pedagogy that was segregative along racial lines, with black students receiving what Freire called 'banking approach' (Freire, 1970: 71). Freire further explains that the banking model of education leads to:

> education becoming an act of depositing, in which the students are depositories and the teacher is the depositor. Instead of communicating, the teacher issues a communiqué and makes deposits that students patiently receive, memorise, and repeat.

A situation where most assignments in Zimbabwean polytechnic education are highly theorised is best explained by Freire's banking approach with respect to the delivery.

Freire (1993: 72) juxtaposed the banking approach for education with his recommended problem-solving education approach and propounded in his later book:

> In the banking approach, knowledge is a gift bestowed by those who consider themselves all knowing upon those deemed ignorant. Projecting an absolute ignorance onto others, a characteristic of the ideology of oppression, negates education and knowledge as processes of critical inquiry. The lecturer presents himself to his students as the only one who is knowledgeable. The lecturer considers their ignorance absolute as he justifies his own existence. The *raison d'etre* of libertarian education, however, lies in its drive towards reconciliation. Education must begin with the solution of the teacher-student contradiction, by reconciling the two ends of contradiction (Freire,1993: 72).

For Freire, the banking approach of education is the greatest weapon in the oppressor's hands. It is a tool to prepare the oppressed, to adapt to their situation as oppressed and submit to the oppressing situation without any defiance. The antithesis of the banking model to education is critical pedagogy, which Freire (1970: 83) called problem-solving education, where people develop their power to have

perceptions to criticise their way of life; they view the world not as a static reality, but as a reality in process, in transformation.

Problem-solving approach is education for freedom and emphasises that lecturers should see themselves as being in partnership with their students. As part of this relationship, lecturers must see themselves as teacher-student, easily accepting that the students have a share of possessing knowledge and solutions with lecturers. Such an approach to education emphasises learning for freedom rather than learning to earn a living and solve bread and butter issues. This, Freire proclaimed as "the pedagogy of the oppressed which is the pedagogy of people fighting to liberate themselves" (Freire, 1970: 53).

Basically, Freire's critical pedagogy focuses on the concept of praxis, the process by which lecturers and students commit to education that leads to action and reflection on that action. This process has five stages:

1. Identify a problem;
2. Analyse the problem;
3. Create a place of action to address the problem;
4. Implement the plan of action; and
5. Analyse and evaluate the action.

Freire postulated that there are three major challenges that are encountered in effectively implementing a critical pedagogy. First,it seeks to overcome the tendency of the educator to revert to the banking approach (Freire, 1970: 94). Second, it criticises false generosity which he views as an attempt to "soften" power of the oppressor in deference to the weakness of the oppressed. In this way the oppressors perpetuate injustice. An unjust social order is a permanent source of this "generosity" which is fed by death, despair, and poverty (Freire, 1970: 94).

2.3.6.2 Bernstein's pedagogical theory

Bernstein's work on pedagogic discourse was concerned with the production, distribution and reproduction of official knowledge and how this knowledge is related to structurally determined power relations (Sadonvik, 2001: 4). What is critical is that

Bernstein was concerned with more than the description of the production and transmission of knowledge; he was concerned with its consequences for different groups (*ibid*).

According to Bernstein's code theory, a school shapes a student's identity and essentially, their view of the world:

> What the school does, its rituals, its ceremonies, its authority relations, its stratification, its procedures for learning, its incentives, rewards and punishments, its image of conduct, character and manner, can modify or change the pupil's role as this has been initially shaped by the family. *Thus the number of pupils initially involved in a particular role can be modified or changed by the school itself* (Bernstein, 1975: 48-49, original emphasis).

A code refers to a 'regulative principle which underlies various message systems, especially curriculum and pedagogy' (Atkinson, 1985: 136). At an operational level, the code is defined by the relation between the coding orientation and how this orientation is realised, according to the formula:

$$\frac{O^{E/R}}{C_{ie} \pm F_{ie} \pm 5}$$

In this formula, $O^{E/R}$ refers to coding orientation, restricted or elaborated. In the restricted orientation the meanings are particularistic, context dependent and have a direct relation with a specific material basis. Restricted code may apply to a direct polytechnic student whose knowledge of mechanical engineering technical language is still shallow and restricted to a few lessons with a lathe machine. In the elaborated orientation, the meanings are universalistic, relatively independent of the context and have an indirect relation with a specific material basis. The latter may apply to an apprentice, whose knowledge of the field has grown beyond a particular restricted orientation of say, welding and is now universalistic. By its own nature, the official pedagogic discourse and practice of the school institutionalise an elaborated orientation. Family local pedagogic discourses and practices are more highly representative of a restricted orientation than an elaborated orientation, depending fundamentally on the family's position in the social class.

In the above formula, C and F correspond to the concepts of classification and framing, used to analyse respectively power and control relations which characterise a given social structure; +/- refer to strong and weak values of classification and framing; "i" refers to internal relations within a given context of communication (family, school, work); "e" refers to external relations between distinct communicative contexts (family and school, community and school, school and work).

Classification refers to 'the degree of boundary maintenance between contents' (Bernstein 1973a: 205; 1973b: 88) and is concerned with the insulation or boundaries between curricula categories (areas of knowledge and subjects). Using the concept of classification, Bernstein outlined two types of curriculum codes: collection and integrated codes. The first refers to a strongly classified curriculum; the latter, to a weakly classified curriculum. Strong classification refers to a curriculum that is highly differentiated and separated into traditional subjects such as Mathematics 1 and 2; weak classification refers to a curriculum that is integrated and in which the boundaries between subjects are fragile, blurred and there are some overlaps. In workshop technology, for example there is no clear-cut subject but a combination of many skills from different subjects. In theory, Bernstein (2000: xvii) originally introduced the terms classification to illuminate:

> …the means by which power relations are transformed into specialised discourses, and framing is the means where by principles of control are transformed into specialised regulations of interactional discursive practices (pedagogic relations) which attempt to relay a given distribution of power.

Framing refers to the degree of control the teacher and pupil possess over the selection, organisation, pacing and timing of the knowledge transmitted and received in the pedagogical relationship (Bernstein, 1973b: 88). In the school, it may '...refer to the *strength of the boundary* between what may be transmitted and what may not be transmitted in the pedagogic relationships' (Walford, 1995: 192; emphasis added).

Framing is strong when the categories with higher status have the control in that relation, and is weak when the categories with lower status also have some control in the relation. In polytechnic curriculum, framing is very strong as CRADU and NAMACO are the categories with higher status that have control over knowledge transmitted to students. The principal, lecturers and students are categories with lower status as they do not have control over what knowledge is imposed on them. Between the extremes of strong and weak classifications and framings a grading may exist (Bernstein, 1973b: 88).

From the principles of classification, Bernstein derived the concept of closed and open curriculum. He called curriculum with strong classification a closed curriculum or *the collection type*. '...Here, the learner has to collect a group of favoured content in order to satisfy some criteria of evaluation (Bernstein, 1975: 87), and all subjects are taught in isolation of each other with strong boundaries separating each subject content. In an open curriculum, what he called an integratedcurriculum type (a weakly classified curriculum), the subjects are not isolated from each other and the boundaries between them are broken down, relationships being drawn between them. From the preceding paragraph, it can be deduced that the Zimbabwean polytechnic curriculum is the collection type which the principal inevitably struggles to integrate.

Bernstein (1975) proposed that education is the primary social *classifier* in society through what he terms the 'three common message systems' that all schools around the globe have in common: curriculum, pedagogy and assessment. These three message systems work to make education "…an agency of socialisation and allocation" (Bernstein, 1975: 199) and through them, difference is produced and reproduced:

> Formal education knowledge can be considered to be realised through three message systems: curriculum, pedagogy, and evaluation. Curriculum defines what counts as a valid knowledge, pedagogy defines what counts as a valid transmission of knowledge, and evaluation defines what counts as a valid realisation of this knowledge… (Bernstein, 1975: 85).

Bernstein stated that through the three message systems of a school, the dominant cultural group controls, classifies, produces and transmits what knowledge is to be learnt and what values and attitudes are acceptable in that society (Bernstein, 1975: 85). The concepts of Bernstein's theory are discussed in detail below.

Due to knowledge production, reproduction and transmission by the dominant social classes, Bernstein argued that the issue of recontextualisation of curriculum surfaces. The official recontextualising field (ORF) of the school creates or constructs pedagogic discourse through its own order by selectively refocusing, relocating and endorsing all discourses within the school (Bernstein, 2000: 33). That is, pedagogy, curriculum and assessment are produced through the ORF and agents within the ORF, such as the polytechnic principal and lecturer or polytechnic initiatives, practices and rituals. The pedagogic recontextualising field (PRF) refers to the recontextualising field outside of the school that dominates and controls the ORF. An example is CRADU or HEXCO. The degree to which the pedagogic discourse is controlled by the ORF and the PRF varies from country to country (Bernstein, 2000).

2.3.6.2.1 Criticisms of Bernstein's work

Sadonvik (2001: 7) highlighted that much of the criticism of Bernstein's early work revolved around issues of deficit and difference. Bernstein's work was criticised for describing the restricted code, and, hence, working-class language, as deficient. Bernstein (1996: 182) rejected this interpretation, explaining that "codes arise out of different modes of social solidarity, oppositionally positioned in the process of production, and differentially acquired in the process of formal education". Sadonvik (2001: 7) further explained that Bernstein argued that his code theory attempted to connect the macro-levels of family and educational structures and processes and to provide an explanation for unequal educational performance. He stated:

> The code theory asserts that there is a social class regulated unequal
> distribution of privileging principles of communication…and that social class,
> indirectly, effects the classification and framing of the elaborated code
> transmitted by the school so as to facilitate and perpetuate its unequal
> acquisition. Thus the code theory accepts neither a deficit nor a difference

position but draws attention to the relations between macro power relations and micro practices of transmission, acquisition and evaluation and the positioning and oppositioning to which these practices give rise (Bernstein,1990: 118).

Hymes (1995: 5) rejected Bernstein's theory on the grounds that he was a racist as other scholars attributed his theory as having negative connotations on races and class structures. Danzig (1995: 152) concurred and cited examples in textbooks written in the 1990s that continue to portray Bernstein in this light.

A second criticism regards Bernstein's writing style, which many found dense and difficult to comprehend (Walford, 1995: 193). Although Bernstein's work was indeed complex and difficult, not all major sociological theorists found it likewise (Swartz, 1997). King (1981) tested Bernstein's early model of pedagogic practice and found strong evidence in his research to support this model. However, Tyler (1984) argued that King's statistical methods were severely flawed and therefore found evidence to support Bernstein's theory.

2.4 EDUCATION SYSTEM IN ZIMBABWE

Education in Zimbabwe was offered before and after independence. Firstly, colonial education in Zimbabwe (Rhodesia), spans from the Federal government of Southern Rhodesia and Nyasaland in 1953 up to Rhodesian government under Ian Douglas Smith (1965-1978) before Bishop Abel Tendekai Muzorewa took over briefly and abortively in 1979 for six months. Secondly, technical and vocational education (TVE) policies after independence from 1980 to date, made an attempt to redress colonial and oppressive policies. This section discusses the effectiveness of the TVE education systems for both periods with particular references to polytechnics.

2.4.1 Colonial Education in Zimbabwe

The Zimbabwean polytechnic principal inherited a plethora of social injustices that were perpetuated by the hegemonic forces of the colonial regime. Until that time, legislation and policies were aimed at oppressing the majority classes of Zimbabwe so that the White political ideals would be instilled in curriculum. The role of all

Zimbabwean principals in this age is to redress any remnant of social injustices through renowned principles of critical pedagogy (cf. 2.3.6.1 & 2.3.6.2).

During the Federation of Rhodesia and Nyasaland (1953 to 1963), TVE provisions for Europeans became the responsibility of the Rhodesian Government while that for Africans was made the responsibility of the Federal Government, a situation which ensured the continued retardation of its growth and development through underfunding due to limited resources (Zvobgo, 1994: 30; Mungazi, 1993: 45). The federation period witnessed the establishment of the University of Rhodesia, the passing of the Apprenticeship Act of 1959 and the setting up of the 1962 Committee of Inquiry into Education. Between 1923 and 1980, the Federal government established five commissions of inquiry with a bearing on TVE policy.:The Hadfield Commission (1925), the Tate Commission (1929), the Fox Commission (1936), the Kerr Commission (1952), and finally the Judges Commission of 1962.

The recommendations of these Commissions led to intensive TVE policy growth and development in Zimbabwe. Technical and vocational education continued to be considered for the not so intelligent white youths while the intelligent ones were earmarked for university and higher-level skills training outside the country, especially in South Africa and the United Kingdom. This trend continued right up to the establishment of a university college in the country through a Royal Charter on 11 February 1955 (Zengeya, 2007: 157). The Kerr Commission (1952) concluded that TVE for black Zimbabweans was being offered in only eight centres (Tegwane, Mzingwane, Domboshava, Inyati, Mt. Silinda, Empandeni, Waddilove and Alvord School of Agriculture). Other industrial skills, such as accounting, electrical and mechanical engineering were not offered for black Zimbabweans. One of the serious outcomes of the Judges Commission was that blacks were subjected to what the whites called F2 secondary schools that prepared blacks to do menial jobs in farms and factories, while the white counterparts learnt in superior F1 secondary schools where education enjoyed adequate resources (Zvobgo, 1994: 23).

2.4.1.1 Apprenticeship Training Act (1959)

The Apprenticeship Training Act established an Apprenticeship Advisory Board to advise the minister of labour on apprenticeship training and this improved the quality

of labour. According to the Act, the Apprenticeship Advisory Board consisted of representatives from the Ministry of Labour, Industrial Councils and Trade Unions (Southern Rhodesia Government, 1959). Apprenticeship Act of 1968 established the Apprenticeship Training and Skilled Manpower Development Authority. The major function of the Authority was to (a) evaluate the impact of technological and other changes on the use of skilled manpower and (b) establish techniques and methods to meet such impact and changes and to assess the future skilled manpower needs of industry in light of economic and technological developments (Zengeya, 2007: 166). The functions of the Apprenticeship Act were later replaced by the National Manpower Advisory Council (NAMACO).

2.4.1.2 Vocational Education and Training Act (1978) and regulations (1979)

This Act mandated the establishment of the Manpower Development and Training Authority and provided for its functions and powers and facilitate the establishment and maintenance of Government technical colleges. The implication of the Act was that of controlling technical and vocational education activities in private colleges, a situation that was to improve on the quality of graduates and provide a human resource with the right level of skills for the needs of the country (Zengeya, 2007: 169). The Vocational Education and Training (Government Technical Colleges) Regulations of 1979 (Act 33/78) spelt out procedures for the college principal to administer student enrolment and all sorts of indiscipline (Government of Rhodesia, 1979). At independence, the majority rule government made education (including TVE) a priority for economic development in Zimbabwe (Government of Zimbabwe, 1986: 12; Mutumbuka, 1981: 7).

2.4.2 Technical and Vocational Education after Independence

After independence, Zimbabwe enunciated several policies that would enhance the provision of TVE in Zimbabwe. First of all, a manpower survey had to be carried out to ascertain the existing levels of skills by trade. The Government of Zimbabwe carried out the manpower surveys from 1981 to 1990. It was done to take stock of the manpower situation in Zimbabwe at the time of attainment of national independence, with particular regard to high-level and intermediate skills under four broad categories of professional, skilled, semi-skilled and unskilled (Government of

Zimbabwe, 1981: 35). One of the major findings of the survey that impacted on TVE policy growth and development was that the nation's human resource was skewed and composed of 8 percent professional, 12 percent skilled, 20 percent semi-skilled and 60 percent unskilled. Most of these unskilled were Black Zimbabweans.

The government instituted the Three Year Transitional Plan of 1982 to develop a comprehensive infrastructure of skills development centres and training institutions in order to achieve self-reliancein all vital skills in as short a time as possible (Government of Zimbabwe, 1982: 7).The National Manpower Survey (1981) had shown that the country's economic and industrial development was underpinned not only by the skills of the European workers but also by the huge African labour force with varying levels of ungraded skills. To achieve some of its objectives, the Government of Zimbabwe built Harare Bulawayo and Kwekwe polytechnics (Mumbengegwi, 1986).

2.4.2.1 The Manpower Planning and Development Act (1984)

The Act empowered the Minister to provide for the establishment and maintenance of manpower training schemes and institutions; to provide for the research and planning of manpower resources; to provide for the imposition of a levy and the establishment of a fund to finance manpower development and other purposes; to establish the National Manpower Advisory Council and the Zimbabwe Manpower Development Fund (ZIMDEF) (Government of Zimbabwe, 1984: 285).

Overall, the Act lacked clarity with respect to providing an adequate legal framework for effective and efficient human resource development in the country. This is mainly because it failed to unite the various human resource development efforts of government and the private sector (Zengeya, 2007: 221). Teacher education for example, and training in the universities, the health sector, agriculture and the mining industry were not covered by the Act. This compromised curriculum standards as it would be too difficult to vocationalise the curriculum with the few remaining teachers.

2.4.2.2 The National Manpower Advisory Council

A National Manpower Advisory Council (NAMACO) consisted of representatives from industry and was set up in 1984 (Government of Zimbabwe, 1984). Generally, NAMACO is responsible for advising the Minister and establishing standards for facilities to be provided by employers for apprenticeship training and participation in developing curricula to be used in tertiary institutions (Government of Zimbabwe, 1984: 13).

The major shortcoming of NAMACO was its poor link with government and polytechnics to close the skills gap. As a solution, direct student's intake was introduced as an alternative to apprenticeship training (Government of Zimbabwe, 1986: 7). The researcher observes that lecturers complain of the lack of skills by direct intake students as they lack prior industrial exposure unlike apprentices.

Industrial Trade Testing Department (ITTD) was also set up by Manpower Planning and Development Ministry to measure industrial skills in levels that range from level 4 to level 1, in ascending order of complexity (Nziramasanga, 1999: 417). Theory and practical examinations are written for each level as one progresses from one level to the next. However, ITTD is not consulted in polytechnic curriculum reviews and has no input in the curriculum offered by polytechnics.

2.4.2.3 Zimbabwe Manpower Development Fund

The Manpower Planning and Development Act (1984) established the Zimbabwe Manpower Development Fund (ZIMDEF) to source revenue from employers (Government of Zimbabwe, 1984: 12). The Fund was used for bursaries, loans, wages and allowances for apprentices and other trainees; costs and out of pocket expenses incurred by apprentices; and meeting NAMACO expenses (Government of Zimbabwe, 1984: 296). To date, ZIMDEF is also used to fund an allowance of US$100 per month for polytechnic direct students on industrial attachments.

2.5 THE CONTEXT OF CURRICULUM DEVELOPMENT

This section concerns itself with the nature of curriculum andthe historical development of different curricularists in terms of how they defined curriculum. Both

prescriptive and descriptive definitions are presented depicting the views that changed over the years. The *currere* approach, forms and traditional models are discussed and their weaknesses noted in relation to relevance of curriculum.

2.5.1 Definitions of Curriculum

Basically there are different views of curriculum, some of which are discussed below. Popham and Baker (1970:48) define curriculum as all planned learning outcomes for which the school is responsible. Curriculum refers to the desired consequences of instruction. According to Australian Education Union (2007: 1):

> curriculum is the "totality of students' experiences within formal schooling". Curriculum describes the practices and operating ideas, both implicit and explicit, in the school. It encompasses the content, structure, assessment and reporting of the formal program of studies, co-curricular activities, and also the administrative procedures, personal relationships and teaching styles in the school".

Silva (2009: 630) views a curriculum as "an emphasis on what students can do with knowledge, rather than what units of knowledge they have".

The above definitions describe experiences that students are subjected to under the auspices of an educational institution. The Australian Education Union points out to curriculum practices that are both implicit and explicit. Radical views on curriculum are seen in some descriptive definitions such as one by Hopkins (1941) who says what a child "selects, accepts and incorporates into himself to act with, on, and upon, in subsequent experiences". Such radical views demonstrate a shift from the traditional view of thinking of what curriculum is.

2.5.2 Curriculum Status Quo

Before discussing the context of curriculum development, a brief overview of the current status quo of curriculum is necessary in respect of the Zimbabwean situation. Connell (1998: 84) aptly describes the curriculum that matches what is prevailing in Zimbabwe when he posits that the curriculum is characterised by:

- An abstract division of knowledge into 'subjects';
- A hierarchy of subjects (with classics, mathematics at the top);
- A hierarchy ordering of knowledge within each subject (fine-grained distinction between elements and advanced material);
- A teacher-centered classroom-based pedagogy;
- An individualised learning process; and
- Formal competitive assessment (the 'exam').

Traditionally Zimbabwean education system is known for preparing students for university and white collar employment. Atkin (1999: 3) supports this claim when he explains the role of education as that of filtering and screening students to university and to the job market. The positive outcome of this political shaping of schooling was that it broke the nexus between post-primary education and socio-economic status and eventually led to secondary education for all. The negative outcomes are that it focused on selecting the most "academically able students," as defined by performance in written exams, on selected subjects deemed to be appropriate preparation for tertiary study. This model of schooling has formed particular attitudes and practices on the part of teachers, students and society.

Some of the educational practices include curriculum content necessitated by preparation for university, streaming, norm-referenced assessment and evaluation, ranking and grading of student performance. In most cases, there is rote learning driven and shaped by written assessment (Connell, 1980:10). This leads to an attitude that learning is neither valid nor valuable unless it can be assessed by a written examination, judgments of worth having to be objective and quantifiable, since assessment is used to select suitable students for higher education and the job market. Connell (1980: 10) states that "the requirements of examining bodies, usually external to the school, were tending to dominate school work, dictating the aims of the school and determining much of its curriculums".

Polytechnics face many challenges that even the drivers of the chariot of this curriculum do not seem to realise that we are what in a "crisis curriculum" (Wheelahan, 2010). Such curricula are characterised by various common features,

such as a structural basis in outcomes sequenced into linear levels, and a focus on generic skills or capacities instead of a detailed specification of knowledge/content. It is in this manner that such curricula have been criticised for stripping knowledge out of the curriculum (Young, 2008: 15; Priestley& Humes, 2010: 28; Wheelahan, 2010: 79).

In Zimbabwe, curriculum and educational practices are designed in the early childhood, primary and early secondary years of schooling, up to tertiary education. This is corroborated by Atkin (1999: 4) who argued that education systems "filter and select" certain students with a focus on university preparation. Even though the Zimbabwean curriculum filters and selects students for higher learning and earning a living, the quality of the curriculum has deteriorated to the extent that it is no longer relevant, as it is still much as it was 20 years ago.

It is not Zimbabwe alone that has deteriorating curriculum standards; even the UK's curriculum studies have declined in both status and practice in the universities and in the wider educational community (Moore, 2006: 8; Priestley & Humes, 2010: 350). Robust theory is really needed to critique and address issues arising from the new curricula. These new curricula in the UK are criticised for being "theoretically agnostic" (Priestley & Humes, 2010: 352) and are thus often fraught with contradictions, resulting in negative impact on curricular practices in schools and other institutions.

Most curricula problems including those in Zimbabwe arise when curriculum discourses are closed off to scrutiny. To this end, the democratisation of culture has made it very possible to challenge the hierarchies and divisions of knowledge including the top-down pedagogy and its assessment (Connell, 1998: 84). The challenge has culminated in various modes such as child-centered pedagogy and the re-emergence of social justice agendas such as compensatory education (Connell, *ibid*). The recognition of multicultural traditions and knowledge in multi-ethnic and post-colonial societies has annihilated forever the taken-for-grantedness of the curriculum (Connell, 1998: 85). It is the democratisation of culture that makes it possible to challenge the status quo, especially in polytechnic education.

One of the solutions to curriculum problems is the *currere* approach that underpins the theoretical framework for developing curriculum in this study. The *currere* is the Latin infinitive form which means *to run the curriculum*, or in gerund form meaning *the running of the curriculum (*Pinar, 2004: 34). Sameshima and Irwin (2008: 7) concurred with Pinar (*ibid.*) that "curriculum is static, while *currere* is dynamic". Irwin (2006: 75) further stressed that "*currere* is the active form of curriculum; a *currere* emphasises acts of inquiry over a course of action".

The researcher observes that the Zimbabwean polytechnic curriculum is static as evidenced by erratic curriculum reviews that are not systematic. Some polytechnic courses can go as far as up to seven or eight years without review regardless of the dynamism of culture and industrial needs. *Currere* investigates the relationship between academic knowledge, life history, self-understanding, and social reconstruction (Pinar, 2004: 35). Thus the Zimbabwean polytechnic curriculum should interface with the Zimbabwean industrial realities and not lag behind.

2.5.3 The *Currere* Approach

Pinar (2004: 35-37) advances four essential stages of the *currere* approach:

- The regressive stage: to return to the past, enlarge one's memories, and transform them to present;
- The progressive stage: to look toward what is not yet the case and what is not yet present;
- The analytical stage: to examine "one's distantiation from past and future functions in order to create a subjective space of freedom in the present," and
- The synthetical stage: to listen carefully to "one's own inner voice in the historical and natural world" to achieve the state of ultimate self-understanding, self-reflection, and self-transformation.

A closer look at Pinar's stages, demonstrates the extent to which the Zimbabwean polytechnic curriculum development process is alienated from reality. This is evidenced by old-fashioned content still evident in most courses. While academics in curriculum development field are engaged in reconceptualising curriculum as a

specific field of study, practitioners in vocational education and training are faced with the dilemma of enhancing relevance of curriculum to meet stakeholder needs. Ross (2000: 35) argued that the debate amongst academics on liberal education (education without instrumentality) versus vocational education (instrumental in goals) should be avoided as it is not fruitful. The Zimbabwean polytechnic CRADU authorities should take heed of Ross's argument that only theoretical education is not more beneficial than vocational education. One challenge that is conspicuous is the theorisation of vocational education that is supposed to be practical and relevant.

Polytechnic education by its nature is a practical activity which is turned into a series of theoretical sessions in Zimbabwean classrooms and workshops. This poses a problem as lecturers seem to be conforming to what Freire (1970: 94) observed in the education system of his day. Curriculum development and teaching are essentially both practical activities whose aim is not necessarily to produce knowledge, but to get something done. Carrying out a task is a practical activity that requires an extraordinary sensitivity to context that is affirmed by an individual's ability to weigh alternative courses of action, to deal with inevitable compromises and the expectation that each situation will be significantly unique (Ross, 2000: 35).

Fullan (1993: 11) observed that "Teachers' capacities to deal with change and learn from it, [and] help students to learn from it … will be critical for the future development of societies. They are not now in a position to play this vital role". This last part of Fullan (*ibid.*) is the problematic part of Zimbabwean polytechnic principals and lecturers in helping students to learn from change and drive the minds of students towards future development. Unfortunately, the whole machinery of polytechnic curriculum is not yet in a position to cause meaningful change.

Elliott (1997: 35) regards curriculum to be a pedagogical experiment to be conducted collaboratively within a network of relations within and beyond school boundaries using action research. According to Whitehead (1999: 78), professional educators create their own curriculum for their professional development and social development to produce their own practical knowledge based on their values. This is rather far-fetched to materialise in Zimbabwean curriculum and too ideal to be realistic.

2.5.4 Forms of Curriculum

Curriculum effectiveness is only achievable if principals are knowledgeable about progressive curriculum theory. This section discusses different traditional forms of curricula in relation to polytechnic curriculum effectiveness. Firstly this section traces some of the definitions of curriculum by prominent curricularists of their time.

Figure 2.3: Forms of curriculum

Vocational

Competence (NVQ)   Continuing Professional
                              Development

Mastery/Induction   **Developmental/Constructive**

Most university education   Learning for the love of it
Up to first degree
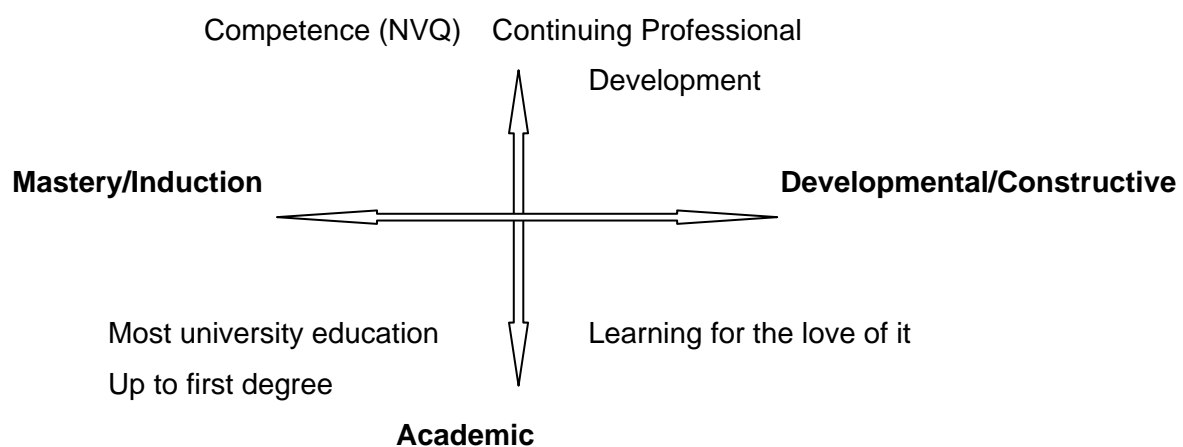
Academic

Source: Artherton (2009: 18)

The curriculum for vocational and technical education in the four sections of the diagram above is still mostly academic even though the emphasis is on its practicality to match what happens in the different industries where the polytechnic graduate is expected to work. This is due to some of the factors already explained, namely lack of adequate equipment to keep abreast of state-of-the-art equipment in the industry and lack of suitably qualified lecturers to deliver quality training.

2.5.4.1 National Vocational Qualification (NVQ)

The national vocational qualification (NVQ) consists of four types curricula that are discussed below.

2.5.4.2 Academic curriculum

Artherton (2009: 18) commented that while academic study is often more highly valued than vocational and professional study, in practice, the academic curriculum of vocational studies is pitched at the lower levels of Bloom's taxonomy (in other words, knowledge and application). Higher levels are mostly concerned with analysis, synthesis and evaluation of the learnt matter and skills that are more pragmatic than theoretical and academic. This is what polytechnic education should strive to achieve and move away from the academic, lower level education.

2.5.4.3 Vocational curriculum

Artherton (2009: 18) explained that this type of curriculum is developed on the basis of the question "why does someone have to learn this?" and of the answer "Because he or she can use it for...". The emphasis is on using the material in order to do something else. The learning objective for example, is not remembering or reproducing a trigonometry equation, but when to apply it. This is an emphasis with Zimbabwean polytechnic curriculum, though principals might lack adequate machinery to offer ideal education (Nziramasanga, 1999: 142).

2.5.4.4 Mastery/Induction curriculum

The major assumption of this type of curriculum is that whatever is to be learned exists "out there" and that the sole responsibility of the teacher or trainer is to induct students into the established body of knowledge (Artherton, 2009: 18). Thus a positivist approach is adapted by this type of curriculum which believes that knowledge already exists and is simply waiting to be discovered. Human perception and intellect may be flawed, and reality may be difficult to pin down, but it does exist (Neuman, 2006: 81; Creswell, 2003: 6).Another critical assumption of this model is that the curriculum designer knows what competence consists of, in a particular vocational area, and what performance criteria are used to measure performance standards (Artherton, 2009: 19). When the curriculum designer knows in advance what knowledge is suitable for learners, then this is what was lamented by Freire(1970: 71) in his banking approach to education, where students are taken as blank slates to be filled with knowledge.

2.5.4.5 Developmental/constructive curriculum

This is concerned with quite advanced skills (rather than simple knowledge) and is developmental in nature. The emphasis is on "improvement" rather than on the achievement of a particular level (Atherton, 2009: 22). This is what is expected of Higher National Diploma students in trades like electrical and mechanical engineering where projects should be designed that solve societal problems. Previous versions of peanut butter making machines and solar heaters for example, may be improved to make them more user-friendly. Not much of this type of creativity and innovativeness is experienced by Zimbabwean polytechnic graduates. This is probably because of incompetence to achieve product leadership in the Zimbabwean market.

The four different types of curricula mentioned above cannot be used independently of each other; hence an eclectic approach is ideal, where a mixture or a combination of two or three may work depending on the situation.

2.5.5 Models of Curriculum Development

The following section outlines models of curriculum development. For instance, Silva (2009: 630) posits that an emphasis on what students can do with knowledge, rather than what units of knowledge they have, is the essence of 21st-century skills.

Ornstein and Hunkins (2009: 15) contended that curriculum development encompasses "how a curriculum is planned, implemented and evaluated, as well as how people, processes and procedures are involved". There are generally two versions of curriculum models: product and process models of curriculum development. Neary (cited in O'Neill 2010: 2) explained that the product model emphasises the "plans and intentions" of the curriculum, while the process model emphasises the activities and effects of the curriculum.

2.5.5.1 Process model of curriculum development

This model assumes that the quality of the process gives rise to the overall quality of the graduates (Ornstein & Hunkins, 2004: 208). The control of the learning activities is still largely in the hands of the lecturers in the classrooms. Posner (1995: 204) explained that teachers are implementers of the curriculum. Therefore, lecturers should be given the platform to exercise discretion to bring new ideas of curriculum development. The choice and control by polytechnic students over what is learnt is minimal and pertains to psychological aspects of their cognitive levels of subject mastery. The 'what' of content is left to industry, principals and lecturers as the implementers of the curriculum as well as curriculum specialists in the Ministry of Higher and Tertiary Education, Science and Technology Development.

2.5.5.2 Product model of curriculum development

The product model emphasises the 'plans and intentions' of the curriculum. This implies that the emphasis is on the product or the end rather than the means to an end (Ornstein & Hunkins, 2004: 208). This model attempts to explain the extent to which students and teachers control the quality of the product. Whilst students do not have direct control over the quality of the product, they have influence over what is produced as the end result. In polytechnics, the quality of skills obtained by the graduate reflects the desired product. Technicians, fitters and turners, accountants, print originators, builders, civil engineers, land surveyors librarians and secretaries are some of the examples of polytechnic products. They are not assigned to classes involuntarily, but deliberately choose what trades/fields they want to train in, even though they do not have control over what quality of skills they will actually acquire in each of these trades.

2.5.5.3 Tyler's curriculum development model

Tyler (cited in Ornstein & Hunkins, 2004: 207) posed the following generic questions to guide curriculum planners in developing curricula.

- What educational purposes should the school seek to attain?

- What educational experiences can be provided that are likely to attain these purposes?

- How can these educational experiences be effectively organised?

- How can we determine whether and to what extent these purposes are being attained?

Four basic principles can be deduced from Tyler's four questions. These are:

- Define the purposes (or objectives) of the curriculum.

- Define the educational experiences (or content) related the purposes.

- Define the organisation (or teaching methodology) of these experiences.

- Define the evaluation of these experiences (Ornstein & Hunkins, 2004: 207).

Ornstein and Hunkins (2004: 207) classified the Tylerian model as the technical-scientific model of curriculum development because it is a useful blueprint for structuring the learning environment. This approach has been described as being logical, efficient and effective in delivering education. Even though Tyler seems prescriptive in the provision of curricula that should be learnt, the development of this type of curriculum is done following certain philosophical and psychological considerations. The objectives of polytechnic education, for example, emanate from the overall thinking that Zimbabwean workers should be highly skilled in whatever job they perform. Psychological aspects of how adult learners learn, such as Knowles' (1984: 47) theory of andragogy, where he derived characteristics of adult learners, help in structuring curricula around interests and experiences of adults rather than what trainers are interested in training.

2.5.5.3.1 Criticisms of the Tylerian model

Though Tyler is credited with having produced a very useful model of curriculum development, his work is of limited relevance to training since he was chiefly concerned with objectives in the realm of academic education(Hodge, 2007: 197). He argued that training involves specificity of behavioural end-products, which cannot be known with any reasonable degree of precision for education. The second way of distinguishing education from training focuses on whether learning

experiences increase individual differences or tend to produce uniformity and similarity of behaviour (Hodge, 2007: 197*).*

The Tyler rationale hinges on the statement of objectives, drawn from three sources, namely studies of society, and suggestions from subject-matter specialists. Data drawn from these sources are to be filtered through philosophical and psychological screens(Hodge, 2007: 197*).*He argued that suggestions from subject-matter specialists turn out to be no source at all but a means of achieving objectives drawn from the other two. It is questionable to assert that educational objectives are drawn from one's philosophy. This may mean that a polytechnic principal must make choices about educational objectives in some way that is related to one's value structure. This says very little about the process of selecting objectives. In his self-reflection, Hodge (2007: 198) "One wonders whether the long standing insistence by curriculum theorists that the first step in making a curriculum as the specification of objectives has any merit whatsoever".Though stating objectives is a noble thing to do, it becomes problematic when they represent external goals allegedly arrived at through the manipulation of learning experiences. Certainly, the whole concept of a learning experience requires much more analysis than it has been given. Finally, Hodge problematised the simplistic view that evaluation is a process of matching objectives with outcomes. He further argued that evaluation ignores significant latent outcomes in favour of the manifest and anticipated ones, and minimises the vital relationship between ends and means. Thus education becomes too linear and superfluous to life situations.

Hodge (2007: 198) aptly summarised the critical views of the Tylerian model as follows:

> One reason for the success of the Tyler rationale is its very rationality. It is an eminently reasonable framework for developing a curriculum; it duly compromises between warring extremes and skirts the pitfalls to which the doctrinaire are subject. In one sense, the Tyler rationale is imperishable. In some form, it will always stand as the model of curriculum development for those who conceive of the curriculum as a complex machinery for

transforming the crude raw material that children bring with them to school into a finished and useful product.

2.5.5.4 Backward design model of curriculum development

This non-technical scientific model of curriculum development draws its principles from the humanistic approach, and also draws from 'looking back' to design a programme. Its basic principles are that it:

- commences with a statement of end-points;
- draws from architecture and engineering;
- states what students want to know and do (discipline and non-discipline); and
- states evidence that should be collected to assess the curriculum (Wiggins & McTighe in O'Neill, 2010: 5).

Strategically, knowledge of the backward design model helps polytechnic principals to anticipate and forecast the expectations of industry. National Advisory Council (NAMACO) studies what skills Zimbabwean industries require. This is working backwards from the product (skill) to the process of producing this skill. Industry specifically requires quality products and does not necessarily concern itself with the rigours of the processes. A whole spectrum of different types of journeymen such as plumbers, bricklayers, electricians, carpenters, welders, chefs, mechanics, auto electricians, among others, are usually in demand and prescribed by different industries. The speed and direction of polytechnics' response to this 'prescription' make them either effective or ineffective. Very often, polytechnics lag behind in both quantity and quality of graduates needed by specific industries. That explains why in certain countries, labour is imported.

2.5.5.5 Curriculum continuous improvement model

Figure 2.4 consists of four phases: collect, evaluate, design and implement. The primary responsibility of collect and evaluate phases is to define 'what' a curriculum needs. The design and implement phases focus on 'how' a new curriculum, or modifications to an existing curriculum, are implemented (Brewer, Harriger

&Mendonca, 2006: 443). The 'what' of a curriculum depicts the content, and the 'how' explains the way used to put it into action.

Figure 2.4: Curriculum continuous improvement model
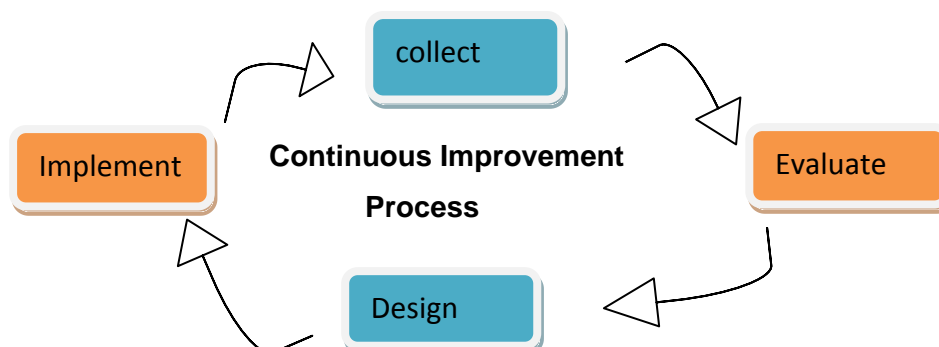
Source: Brewer, Harriger and Mendonca (2006: 444)

2.5.5.5.1 Collect phase

Whether an educational institution is developing a new programme or improving an existing one, the process begins with data collection that is, discovering "what" a curriculum must include. When establishing a new programme, there must be a complete investigation of the market needs for the new programme. The curriculum developers should identify the stakeholders that possibly include the following groups who will be impacted in some way by the new programme:

- students who enrol in the programme;
- potential employers of graduates of the programme;
- educators who deliver courses for the programme;
- administrators who manage all aspects of programme delivery;
- citizens who impact or are impacted by the programme; and
- accrediting bodies that evaluate and certify the programme.

It is important to understand that each stakeholder has a different interest in and perspective on the curriculum, so each plays a different role in defining curriculum objectives. For this reason, data must be collected from every type of stakeholder, where possible, to build a complete picture of the environment in which a programme

must operate (Nziramasanga, 1999: 418, 420; Brewer, Harriger & Mendonca, 2006: 445; Meyer & Bushney, 2008: 1235). The key data sources are listed below.

- Stakeholders such as students, employers, educators, administrators, and citizens;
- Current and emerging technologies;
- Accrediting organisations;
- Available resources;
- Model curricula;
- Community, local and regional government needs and expectations;
- Benchmarking data from other programmes; and
- Institution mission, strategic plans (Brewer, *et al.*, 2006: 446).

2.5.5.5.2 Evaluate phase

Metrics identify the competencies against which a programme will be measured (Brewer, *et al.*, 2006: 447; Morgan, Levitt & Malek, 2007: 51). A programme should document baseline metrics for all critical success factors and then identify targets. These targets may be based on the benchmarking data collected in the collect phase. When a programme is initially designed, the data collected in the first phase includes model curricula, institutional mission statements and strategic plans, community needs, and so on. Before the curriculum can be defined, key people should actively participate in the establishment of the programme's strategic plan to ensure that it is consistent with the institution's strategic plan, matches community and regional needs, and is appropriate for the political and legal climate (Brewer, *et al.*, 2006: 446).

2.5.5.5.3 Design phase

This phase shifts the focus from "what" the curriculum is going to accomplish (objectives and outcomes, which were defined in the collect and evaluate phases) to "how" the curriculum is going to be constructed or changed. The design phase articulates the curriculum and ensures that it is aligned with the mission, needs, resources and other factors identified. Using the information collected and evaluated, a fully-functional, effective and tailored curriculum can be designed. The design

phase is actualised through an iterative and incremental process (Brewer, *et al.*, 2006: 447).

2.5.5.5.4 Implement phase

Implement is the final phase of the continuous improvement process framework. During this phase, the inputs of new course models and course changes are used by the programme's curriculum governing body to enact changes to the current curriculum. A detailed curriculum document is prepared listing the current course information and the proposed changes (Brewer, *et al.*, 2006: 451). The technical knowledge of understanding how this model operates helps polytechnic principals to continuously manage the improvement of curricula in order to keep abreast of the trends of industry's needs.

2.5.5.6 Criticisms of the traditional models

The traditional models of curriculum such as process model, product model and continuous improvement model have their fair share of criticism. These models are full of high hopes that are too difficult to implement as they ignore the practical implications that emanate from the socio-economic and political realities of society. All these traditional models fail to take into account social injustices perpetrated against weaker groups of society such as women and children. The models are further criticised as superfluous even in their pedagogy because they stifle creativity in students and ignores their needs. Even though they seem to consider students' needs, the needs are imposed on the curriculum. That is why Pinar (2000) asked the famous question, "Whose knowledge is it?" This demonstrates the dominance of curriculum perpetrated by such models that fail to take into account all facets of knowledge by category of groups.

2.6 TRADITIONAL EFFORTS FOR IMPROVING CURRICULUM EFFECTIVENESS

This section discusses traditional efforts by polytechnics for improving curriculum effectiveness.

2.6.1 DACUM Approach to Curriculum Content Determination

Mittal, Anand, Singla, Gupta, Gupta and Thukral (1999: 35) explained that DACUM (Developing a Curriculum) depends largely on curriculum experts employed in a specific occupational area to determine curriculum content by following a systematic process. As has been mentioned above, the process is rather systematic in procedure. The DACUM approach in Zimbabwean polytechnic curriculum is evident in curriculum reviews done every five years. Curriculum reviews done from responding to the needs of the stakeholders may not be that systematic as to warrant being done every five years. Setting and compilation of examination items is done annually by 'curriculum experts.' Most of these polytechnic curriculum 'experts' are mere artisans who are not well versed in curriculum theory, yet they are expected to perform wonders in coming up with sound guidelines of student learning. The HEXCO curriculum department is not spared in this regard as most of the curriculum officers that act as a link between HEXCO and polytechnics are former high school teachers or polytechnic technicians that act as lecturers with no specific pedagogical and andragogical knowledge.

In the DACUM approach, suitable experts representing different sectors of employment and functional areas should be identified and asked to participate in a workshop to select the content for a particular programme based on the objectives of the curriculum (Mittal, *et al.*, 1999: 35). The DACUM workshop group functions collectively with all development activities taking place when the members are together. A curriculum expert is the coordinator of the group in taking appropriate decisions by adopting the following procedure:

- reviewing the employment opportunities;
- reviewing the activity profile;
- reviewing the goals and objectives of the curriculum;
- reviewing the appropriateness of curriculum areas;
- identifying components of knowledge and skills required for developing desired competencies;
- structuring knowledge and skills into meaningful learning sequence; and
- working out time required for instruction.

The procedure outlined by the DACUM approach above comes nowhere near the actual process that culminates in the development of polytechnic curriculum. Even though some form of workshop might be organised, the composition of the members does not normally constitute an expert workshop. HEXCO curriculum board members are Zimbabwean polytechnic principals who make important decisions that affect their individual polytechnics (HEXCO, 2004). This arrangement is rather problematic as they have conflicting interests that compromise the quality of polytechnic curriculum effectiveness. Such workshops are normally dominated by principals who decide what to include in certain curricula at the expense of the recommendations of industry.

2.6.2 Delphi Technique

Mittal*, et al.* (1999: 36) described the Delphi technique as consisting of a series of interrogations with selected experts by means of mailed questionnaires. The focus is on some curriculum content area in which an individual is knowledgeable. Mittal*, et al.* (1999: 36) argued that the Delphi technique is not biased as some respondents never meet face to face to influence each other with their outlook. In addition, anonymity enables each respondent to be more thoughtful and creative. This technique is exhaustive as information is sought again and again until consensus on content reached. Due to busy schedules many experts have in their daily routines, the Delphi technique proves to be time-consuming and this compromises its strengths. Maybe that explains why Zimbabwean polytechnics do not use this type of approach in curriculum planning.

Mittal*, et al.* (1999: 37) stressed that the involvement of experienced professionals and academics, their selection and the background of curriculum coordinator (in terms of his/her knowledge and skills pertaining to education technology and human resources development, and leadership qualities) are key factors in designing appropriate curriculum. This approach is highly theoretical and is not applied in the Zimbabwean situation of curriculum development.

The above curriculum design techniques are supposed to be implemented by National Manpower Advisory Council (NAMACO), whose major task is to develop and implement the Zimbabwe Occupational Standards Framework (Zimbabwe 1996:

Sec 19.2). The researcher observes that the main beneficiaries of NAMACO are Higher Education Examinations Council (HEXCO) and Curriculum Research and Development and Unit (CRADU) in the Ministry of Higher and Tertiary Education. NAMACO is expected to develop relevant and up-to-date job profiles in liaison with industry representatives, such as Confederation of Zimbabwean Industries (CZI) and Zimbabwe Chamber of Commerce (Mbizvo, 2013: 14). However, the role of NAMACO is not practically evident in the day-to-day development of polytechnic curriculum.

One would ask how Zimbabwean polytechnic curriculum is developed in the clear absence of NAMACO's direct involvement. CRADU has actually appointed some senior lecturers to be discipline coordinators of curriculum planning (HEXCO, 2000). These para-professionals coordinate the activities of curriculum review and forward their recommendations to a group of polytechnic principals (HEXCO board) who scrutinise the contents of the proposed changes, and ratify or reject the changes based on their experiences and expertise (HEXCO, 2000). The involvement of experts from industry is normally stressed during external assessment of coursework and examinations. In extreme cases, industry experts are asked to validate the quality of theory and practical examination items (HEXCO, 2004). This would be ideal, but some of these experts lack theoretical knowledge of the pedagogical procedures.

2.6.3 Planning at a Central Stage (CRADU)

The major challenge is that CRADU has no legal credibility just like Zimbabwe Schools Examination Council (ZIMSEC), to be autonomous because it is run as a department of the Ministry of Higher and Tertiary Education, Science and Technology Development (Manpower Planning and Development Act, Government of Zimbabwe, 1996, Part 2: Sec 4). CRADU is not established by an act of parliament. Even though planning of polytechnic curriculum is centralised, individual polytechnics exercise their discretions in responding to the needs of their immediate environment. For example, Mutare Polytechnic, situated in Eastern Zimbabwe, is surrounded by exotic woodlands that made it possible for it to introduce B.Tech in

Wood Technology. This is done on a piecemeal approach as qualified lecturers to teach at university level are still scarce.

2.6.4 In-Service Training of Trainers or Lecturers

CSC has a manpower development leave that is offered to civil servants to further their studies (Manpower Planning and Development Act, 1996; Sec 47). Its benefits are two-fold: firstly, one is on half salary during the period of study. Secondly, both the costs of tuition and examination fees are reimbursed upon the production of receipts on completion. Even though there is a CSC policy to develop human resources, the lecturers' initiative to develop themselves is met with very rigorous, bureaucratic selection procedures. The quota or number of lecturers approved to undergo further studies is too small to be meaningful. At Harare polytechnic alone, only about eight staff members' manpower development leaves are approved per financial year, despite the huge demand of about three hundred lecturers who need to further their education somehow.

2.6.5 Polytechnic Curriculum and Quality Assurance Committees

"Polytechnic academic quality assurance framework, charters and overall curriculum provisions are overseen by this committee which monitors the academic performance of the polytechnic against its agreed targets or benchmarks" (Abu Dhabhi Polytechnic, 2010: 32). Such quality assurance committees are not evident in Zimbabwean polytechnics. Departments act arbitrarily as such committees when they check the fulfilment of HEXCO coursework requirements termly. This is what polytechnics call internal assessment where the quantities (and sometimes quality) of assignments and tests are verified.

2.6.6 Curriculum Evaluation Strategies

Generally, evaluation is a process through which some individual or a group makes a judgment about the value of some object, person, or a process (Posner, 1995: 221). Scriven (in Posner, 1995: 226) explained that curriculum evaluation decisions are either formative or summative.

If curriculum evaluation is done properly, it will address the Skills, Knowledge and Attitudes (SKA) model of effective polytechnic curriculum of Williams and Hua (1999: 6) that has been explained above. In Zimbabwean polytechnics, this is done through assessment that encompasses industrial attachments, coursework (both practical and theoretical) and written examination for each course. A one year-long industrial attachment is continuous assessment that seeks to orient students to the real world of work during skills training. Higher Education Examinations Council (HEXCO) assesses students' performance using what it calls 60-40 policy, designating that coursework carries 60% of the overall grading with a 40% weighting for the examination (HEXCO, 2004: 6). HEXCO's assumption is that coursework should be practically-orientated because graduates are expected to perform their duties practically, displaying overt skills in industry (HEXCO, 2004: 6). However, polytechnic lecturers are not capable of setting sound practical assignments given the fact that most lecturers lack necessary pedagogical skills, as mentioned above.

In Zimbabwean polytechnics, curriculum is evaluated internally and externally (Higher Examinations Council, 2006: 4). Internal and external assessment strategies are explained below.

2.6.6.1 Formative evaluation

In formative evaluation, the decision maker is part of the curriculum development effort, and thus, the evaluation process is an internal process (Mittal*, et al.*, 1999: 35*, 80*). On each of the Higher Education Examinations Council courses, students are assessed on the strengths of two theory assignments weighing 22% and two practical assignments weighing 31% and two tests weighing 7% giving a total of 60% for coursework. The students write an examination that weighs 40%. A student is expected to pass both coursework and the examination.

Polytechnic curriculum is evaluated internally by Heads of Departments verifying that HEXCO requirements of two theory, two practical assignments and two tests per subject are administered. The mark sheet per subject per class should be completed correctly using the 60-40 policy explained above. The departmental academic files should be in place with schemes of work, assignment list per subject as well as

marking schemes per assignment. A file room for each department should be prepared where students present their academic files with marked assignments. Internal evaluation is done as preparation for external assessment (HEXCO, 2004).

2.6.6.2 Summative evaluation

In summative evaluation, the decision maker is external to this effort and so, is the evaluation process (Mittal*, et al.*, 1999: 35*: 80*). External assessment is supposed to be done by industry representatives for each discipline. Representatives from Zimbabwe Broadcasting Corporation (ZBC) should come and assess journalism courses while Zimbabwe Electricity Supply Authority (ZESA) representatives should also assess some electrical engineering courses. However, this is highly theoretical as what actually happens on the ground is totally different from the expected.

The way these external assessors are appointed is also problematic as it compromises quality of assessment done. This is because each college invites its own assessors sometimes with no clear criteria. As a reward of payment will be made at the end of the exercise, it is questionable whether the assessment will be objective, since the external assessors know that the following year another invitation might come. Probably, having a pool of external assessors appointed by HEXCO on merit, based on current industry experience and deployed randomly to polytechnics, would improve the overall quality of assessment. There is an attempt to decentralise polytechnic curriculum assessment to the ten centres of Zimbabwe, namely Harare, Bulawayo polytechnic, Kwekwe polytechnic, Gweru polytechnic, Mutare polytechnic, Masvingo polytechnic, Belvedere Technical Teachers' College, Joshua Mcabukho Nkomo polytechnic, Kushinga Phikelela polytechnic, and Bulawayo School of Tourism and Hospitality. However, only marking and external assessment have been decentralised (HEXCO, 2006).

2.7 COMPETENCY-BASED EDUCATION

This section describes and critically discusses competency-based education in the context of Zimbabwean polytechnic curriculum implementation. Firstly, a distinction is made between the terms 'competence' and 'competency'.

2.7.1 The Definition of Competency-Based Education

Kleins-Collins (2013: 1) defined competency-based education (CBE) as focusing on what students know and can do rather than how they learned it or how long it took to learn it. In this respect, Pritchard (2009: x) added: "Effective learning is learning which is lasting and capable of being put to good use in novel and differing situations". The partnership between learners and teachers as adults in a competency-based programme is based on mutual trust and respect along with a shared commitment to providing the highest quality polytechnic education.

For the purpose of this study, competency-based education is taken to mean a programme of study with clearly defined, concrete, measurable objectives in which every student must demonstrate mastery of skills, knowledge and ability during and upon completing the programme. Such programmes also involve students working at their own pace and structuring their own learning methodology so as to realise programme objectives. It is student-centred. However, Zimbabwean polytechnic education is teacher-centred where students do not participate in structuring their own learning methodology and are compelled to work according to the calendar of each polytechnic and overall, according to HEXCO.

2.7.2 The Definition of a Competency

The term "competency" reflects a combination of knowing and doing. Some programmes use terminology such as "ability-based education" at Alverno College or "competences" at DePaul University School for New Learning. The underlying concept is similar. Students should surpass mere knowledge acquisition and they should demonstrate that they can apply what they have learnt in different situations (Klein-Collins, 2013: 5).

Kleins-Collins (2013: 5) noted that "Competencies are not wish-lists: they are learned, enhanced, expanded; they mark empirical performance, and a competency statement either directly or indirectly posits a documented execution". Klein-Collins (*ibid*) argued that it is better not to use terms like "abilities," since "one doesn't know a student has the 'ability' or 'capacity' to do something until the student actually does it, and the 'it' of the action is the core of competence."

Humphrey (1992: 61) defined a competence as "the ability of the learner to put skills and knowledge into action". Theoretical knowledge of electrical engineering, for example, is not adequate without the action of electrifying new factories, houses, or dormitories. Ellstrom (1997: 267) defined it as the capacity of an individual to successfully handle certain situations or complete a certain task or job. This capacity may be defined in terms of:

- Perceptual motor skills (e.g. dexterity);
- Cognitive factors (different types of knowledge and intellectual skills);
- Affective factors (e.g. attitudes, values, motivations);
- Personality traits (e.g. self-confidence); and
- Social skills (e.g. communicative or cooperative skills).

These factors are embedded in Zimbabwean polytechnic curriculum as perceptual motor skills are reflected in practical examinations, for example shorthand, welding, computer skills, and others. However, theory tests which incorporate cognitive factors tend to dominate more than practical tests. The technicians and artisans who act as trainers lack training skills and this tends to compromise the quality of the learning process. Many authorities contend that vocational training is still oriented towards technicians with principles of repetitive tailoring-work and performing work as directed (Ellstrom, 1997: 268). Secretaries in Zimbabwe, for example, were trained in simple receptionist duties of answering telephones and diarising important errands and appointments for their managers. Nowadays, secretarial course incorporates accounting concepts and some computer skills in order to adapt to the changing work environment.

A distinction is necessary between a competency and a competence. Davies, Ellison and Bowring-Carr (2006: 33) explained that the term competence recognises a person's demonstrated ability, in terms of skills and knowledge, to meet the minimum standards to fulfil a role in a particular occupation. It relates to the achievement of outputs, that is, a person's ability to produce satisfactory results through carrying out the role. In contrast, Davies*, et al.*(2006: 36) defined a competency as a measurable characteristic of a person that is related to effective performance in a specific job, or

culture. A competency is not, therefore, a task but a characteristic that enables a person to carry out the tasks of the job. Thus both a competence and competency should be present for a person to be effective. In competency-based education (CBE), industry prescribes the competency standards and also suggests practical assessment guidelines for evaluating students' performance. The polytechnic is responsible for developing appropriate learning strategies, assessment materials and professional and academic resources needed to effectively deliver training that will meet the needs of industry-specific competencies. The CBE methodology therefore involves a symbiotic relationship between industry and training providers or polytechnics (Afeti, 2005: 9). Figure 2.5 below outlines the development of competences from novices to experts with detailed stages and learning areas of competence.

Figure 2.5: Vocational competence from 'beginner to expert'

Stages of competence development from novice to expert

Learning areas for competence development
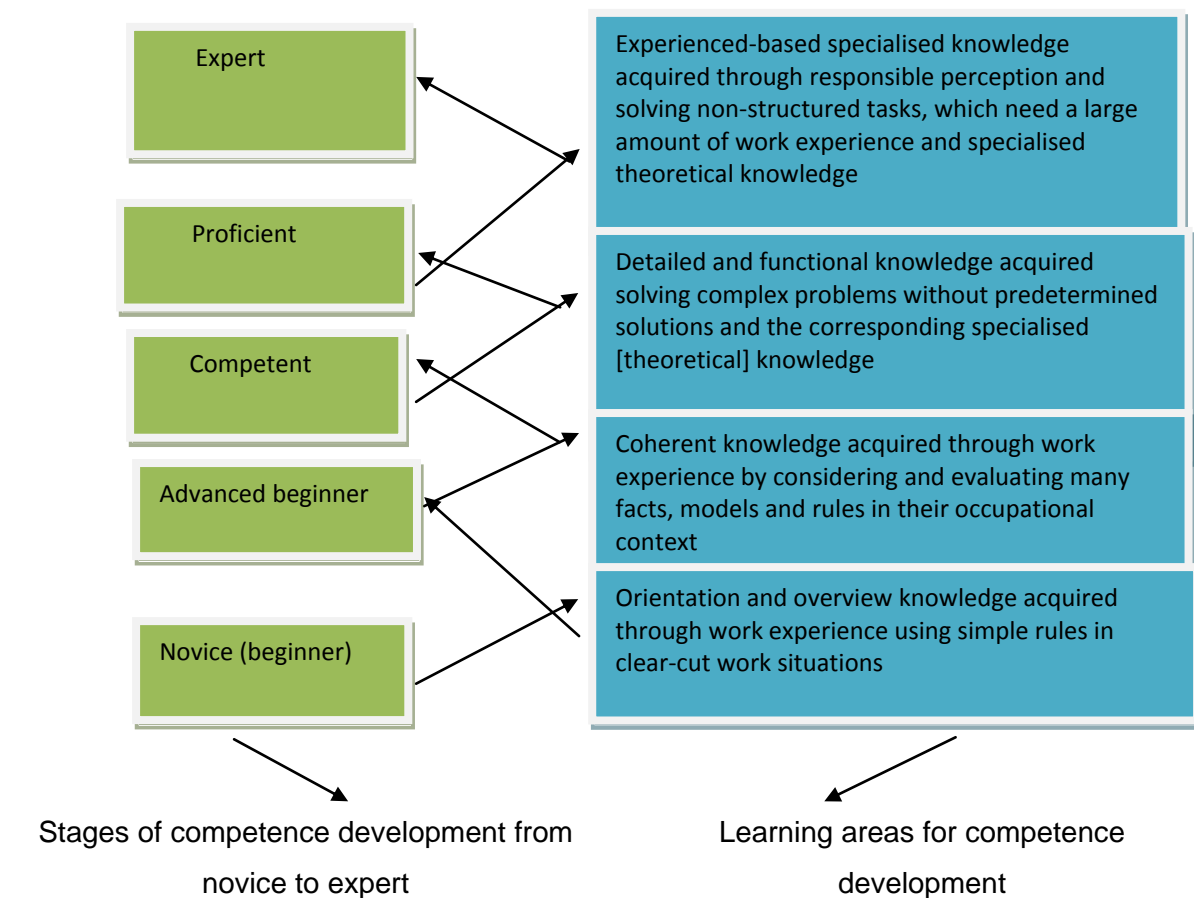
Source: Rauner (2007: 54)

A critical analysis of the above diagram reveals that most of the skills are acquired from work experience and less from theoretical knowledge. There is no emphasis on schooling as the basis for acquiring knowledge. It is basically from the work place where one acquires sufficient skills. One becomes an expert through solving non-structured tasks, which need a large amount of work experience and specialised theoretical knowledge (Rauner, 2007: 54). This suggests a deficiency that is inherent in polytechnic curriculum where a student spends more time at college subjected to theoretical work with little practical work-based exposure.

2.7.3 The Historical Overview of Competency-Based Training

Modern competency-based education and training movements began with the U.S. efforts to reform teacher education and training in the 1960s (Brown, 1994: 2; Ford, 2014; and Tuxworth, 1994: 110). Brown (1994: 3) described sequential "generations" of competency-based learning and suggested that the models that emerged in the 1980s and early 1990s represented the fifth generation of the competency model.

Brown's (*ibid*) historical account, especially influenced by Australia's competency-based vocational education model, traced the development of CBE from the first generation, which focused on the application of scientific management to work roles. The second generation traced the development of mastery learning models in the U.S. during the 1920s and 1930s. The third generation of competency-based approaches was primarily concerned with formative vocational education and training, and reflected instructional design influenced by psychology namely, the work of B.F. Skinner, which explains why it is associated with behaviourism (Brown, 1994: 4).

The fourth generation was represented by the teacher education movement in the U.S. moving beyond vocational training to education. This is when the word "competency" took shape largely in association with this model of instruction and learning, and when a number of concepts associated with modern competency-based learning came to the fore (Brown, 1994: 6). For example, measurable, behavioural objectives were used to specify what a learner should be able to "do" and at what level (standards-based performance) following training. The introduction

of systematic instructional design and curriculum development was pegged at this era. The transition from one generation of competency-based approaches to the next was the increased realisation on outcomes rather than process. Brown (1994: 11) pointed out that "One of the characteristics that has always been associated with CBE is that it is highly contentious as an approach to education and training".

Jones and Voorhees (2002: 33) examined fourth and fifth generation competency-based programmes focusing on adult learners in the U.S. Their finding was that most programmes in post-secondary education focused on development and applicability of competency-based curricula in specific disciplines and in some cases, to specific workplace skills and institutional effectiveness. Oregon came up with what was called Proficiency-Based Admission Standards System (PBASS), which sought to bridge the competency gap between secondary and post-secondary education. These reforms aroused interest in similar programs in 20 other states, including Maryland (Jones & Voorhees, 2002: 35).

Besides secondary and post-secondary education, the competency-based education movement also influenced the curriculum design and implementation of vocational education in the UK and especially in Australia, where national reforms in the late 1980s and early 1990s required that all accredited vocational education programmes be competency-based (Hodges & Harris, 2012: 15). Additionally, Tuxworth (1994: 115) suggested that competency-based approaches were a prominent feature of health-care related education, training and professional development.

However, in an extensive review of research from 1966 to 2002, Carraccio, Wolfsthal, Englander, Frerentz, and Martin (2002: 363) found that efforts to apply competency-based models to medical education and training essentially stalled at the conceptual level. Their finding was that most CBE efforts of reform pivoted on identifying general competencies and learning outcomes. CBE failed to link curriculum and residency training to specific medical competencies. In addition, CBE lacked valid assessment tools to evaluate medical competencies and this limited the extent to which health-related education providers were able to operationalise competency-based learning approaches (Carraccio, *et al.,* 2002: 364). In 2012, Curriculum Research and Development Unit (CRADU) attempted to introduce

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competency based education implemented in the form of modules that could encompass some identified polytechnic competencies. CRADU preempted the implementation of polytechnic curriculum in the form explained by Klein-Collins (2013). This failed and the lecturers and Heads of Department reverted to their old theoretical curriculum with practical assignments that were not authentic.

Klein-Collins (2013: 4) also traced the rise of CBE programmes in the U.S., asserting that "An intensive focus on what students know and can do rather than on what is taught, for instance, is a hallmark of CBE programmes going back at least four decades". According to Klein-Collins (*ibid.*), there was increased interest in and federal funding support for the expansion of higher education opportunities to working adults in the 1970s.This led to the development of several well-known competency-based degree programmes at Alverno College, DePaul University's School for New Learning, Empire State College, Excelsior College (previously Regents College), and Thomas Edison State College.

These early programmes were clearly distinguished by their emphasis on learning outcomes and assessment of learning outcomes. It was typical to find competencies embedded in the curriculum, including related advancements in prior learning assessment via portfolios and standardised tests (Klein-Collins, 2013: 4). In Zimbabwean polytechnics, there is a mixture of old curriculum and the new National Certificate competency-based curriculum. The new competency-based curriculum has performance criteria that show competencies. What is surprising is that these performance criteria are not reflected in practical assignments. Lecturers still produce theoretical assignments with no intervention from heads of department.

Due to the historical development of competency-based education (CBE), one could undoubtedly argue that online learning, advances in learning analytics and adaptive learning technology, and the operationalisation of direct assessment models to entire tertiary degree programmes as well as post-secondary vocational education, signaled an evolutionary shift toward a sixth generation of competency-based education models (Klein-Collins, 2013: 4). Zimbabwean polytechnic curriculum is nowhere near online learning and use of adaptive learning technology is scarce. In instances where projectors were bought, they are lying idle. Power-point

presentation is sporadic and unsystematic. It seems there is no one who has the knowledge of enforcing the use of such technology in improving instructional delivery. The Harare polytechnic accounts department is still heavily manualised, with receipts being handwritten and daily amounts manually entered in a cash analysis book. This demonstrates how little knowledge stalls progress in embracing technology that simplifies heavy loads of work.

Previously, CBE programmes were primarily a niche that targeted higher education market space. Calls for increased productivity, effectiveness, and demonstrable outcomes from the education sector have prompted expanded global interest in the development of major competency-based education initiatives. According to Klein-Collins (2013: 5), "CBE's sharp focus on student competencies is designed to validate the quality of the degree, and its technology-based approach to learning has the potential to lower cost".

Emphasis on direct assessment of competencies rather than instructor-led courses is another distinguishing feature of sixth-generation CBE programmes (Klein-Collins, 2012: 35). Elsewhere in colleges in the US, students earn their degrees by successfully completing a series of project-based assessments that enable them to demonstrate the level of mastery of stated competencies. Klein-Collins (*ibid.*) argued that students are assisted, rather than taught, by coaches and mentors, who may also be responsible for curating content that students may need to help master a given competency. In addition, tuition fees for these types of programmes are typically based on a six-month "all you can learn" flat-rate subscription model, which may enable some students to advance faster than a traditional semester or time-based model (Klein-Collins, 2012: 38). However, one would be surprised to find out that even in the US, competency-based education has not been as smoothly implemented across the whole country as would be expected.

2.7.4 Theoretical Underpinnings of Competency-Based Education

Reductionism is a theory which states that a system can be fully understood in terms of its isolated parts (Leung, 2002: 694).This idea was first attributed to the ancient Greek philosopher, Democritus, who believed Leucippus' atomic theory and argued

that knowledge of specific atoms and their different properties would allow everything in nature to be explained (Brown & Smith, 2003: 83). By way of example, reductionism in automotive engineering in polytechnics would be practical if a trainee mechanic could learn the four stroke engine, engine overhaul and auto-electrics separately and then intuitively integrate them into a complete auto-mechanic.

Polytechnic curriculum is ideal if it embraces modern reductionist principles that are represented within behaviourism psychology. Behaviourism celebrates the need for observable, quantifiable aspects of behaviour and excludes subjectivity (Pinar, Reynolds, Slattery& Taubman, 2004: 93) and these tangible aspects of curriculum are missing from Zimbabwean polytechnic curriculum. Apprentices save face by acquiring skills first two years in industry before joining polytechnics for the last two years for their theory lessons. Objectivism and positivism provide further rationale for this philosophy. Objectivists believe that knowledge is based on observed objects and events (Eisner, 2002: 53),whereaspositivists develop knowledge directly from empiricism (Playle, 1995: 24).Therefore it can be deducedthat bothobjectivism and positivism support the ideals of behaviourism, namely observable and quantifiable data based on behavioural objectives and attributes, for example, knowledge, skills, attitudes and values. Spady (1995, cited in Schilling & Koetting, 2010: 166) defined these capacities (knowledge, skills, attitudes and values) as the ability to compare objective data with pre-determined standards. Furthermore, the CBE framework in professional programmes applies these theories by stipulating that students' behaviours can be controlled through an instructional stimulus producing an anticipated, quantifiable response whose measurement is compared against predetermined standards. It is this predetermination of standards by Zimbabwe's Curriculum Research and Development Unit (CRADU) and National and Manpower Advisory Council (NAMACO) that most curricularists continue to question in the wake of social injustices that are dominant in most curricula.

The theoretical basis for the CBE framework was derived from both philosophical inquiry and industrial innovation. In 1881, machine-shop supervisor, Frederick Taylor, sought to define a full and fair day's standard for each duty his workers performed (Wren, 2005: 124).He broke each task down into its component parts and eliminated wasteful movements. He then measured the time each job required from

initiation to completion. According to Taylor, this method objectively established a piece-rate or standard for each task and eliminated waste, reduced errors, and increased productivity in an era where mass production, effectiveness, and efficiency were paramount (Pinar, *et al.*, 2004: 93).Educational behaviourists eventually recognised that this industrial theory could be applied to classroom learning by dividing and sequencing course material (Pinar, *et al.*, 2004: 94). Thus, scientific management theory established the groundwork for conducting job analyses to discover the specific behaviours needed for a profession and carrying out the process systematically to create pre-determined standards were established (*ibid.*).

2.7.5 Social Efficiency

Social efficiency was developed by combining the idea of social control with the principles of scientific management to produce an efficient and effective educational system (Kliebard, 2004: 17). Its curricular ideology was designed to prepare students for adult work and citizenship roles in an efficient, standardised way that would create an orderly and stable society (Null, 2004: 99).The sociologist Edward A. Ross, the pioneer of social control, defined it as an intentional dominant condition that stemmed from a self-conscious knowledge of factors and tendencies of social life and continued according to a plan (Ross, 1901, cited in Schilling & Koetting, 2010: 167).Examples of this are beliefs, agencies, and regulations which prevent individual deviation from an expected norm and provided social order in a changing society. Ross's work strongly influenced educational sociologists, including Kliebard (2004: 19) who developed curricula tied to the roles future citizens were to performand used schools as instruments of social control to shape the thinking of students. Tying education to future social roles is consistent with the goals of CBE.

Joseph Rice (cited in Kliebard, 2004: 21), a curriculum leader, a social efficiency ideology advocate, having been concerned with the amount of irrelevant subject matter in present higher education curricula, argued that the application of scientific management techniques, which were successful in industry, could eliminate unnecessary or repetitive material and free time to include other more socially important information. By removing superfluous material and streamlining the educational process, Rice believed a more directly related curriculum could be

created to better serve the future adult roles students would occupy (Kliebard, *ibid*).The social efficiency ideology, with all its sound doctrine, is still silent in Zimbabwean curriculum though it seeks to build an educational system that combines the principles of scientific management, such as standardisation, with Ross' theory of social control to emphasise preparing students to positively contribute to an industrialised society in an efficient manner by eliminating unnecessary course work (Kliebard, *ibid*).These characteristics helped formulate the rationale for introducing the CBE process in higher education.

2.7.6 Essentialism

During the 1930s the educational theory of essentialism was introduced. As with social efficiency, it emphasised the need for programs in higher education to focus on the essential skills to become productive, effective citizens in society (Gutek, 2004: 263).This theory proposed teaching skills systematically and sequentially, while insisting on high standards of achievement (Gutek, 2004: 264). Essentialism characterised the standards movement, whose aim was to improve education through academic standards to measure student achievement. In CBE programs, the objectives were generally measured against pre-determined standards to demonstrate competency of that particular skill or knowledge. Gutek (*ibid*) exemplified the use of standardised national exams to ensure competence of graduates in health care disciplines, including athletic training. In Zimbabwean polytechnic education system, HEXCO utilises practical assignments as competencies that are assessed and evaluated as coursework. Though such Zimbabwean polytechnic competencies do not entirely fit into the definition of a competency defined elsewhere above, they act a valuable starting point for sound competencies in future.

2.7.7 Vocationalism

Vocationalism traces its roots back to before the social efficiency movement. In 1862, the US Morrill Act formally recognised the role of higher education in preparing students for vocations by giving every state federal land to build at least one institution to teach subject matter related to agriculture and technical education to produce graduates with practical skills applicable in specific areas (Grubb

&Lazerson, 2005: 2).However, at the end of the 19th century, the majority of professional preparation took place on the job under apprenticeship arrangements (Grubb & Lazerson, 2005: 3).This created a vocationalism gap in education before it would re-emerge in the early 20th century.

Early in the twentieth century, John F. Bobbitt, a scientific curriculum planner, developed occupational efficiency from social efficiency (Null, 2004: 100).Elaborating Rice's desire to implement the Just-in-Time (JIT) system in the curriculum, Bobbitt argued that curriculum should be constructed around predicted social and vocational roles. During the same time period, David Snedden espoused a similar vocational education curriculum built around adult roles and training students for social occupations (Null, 2004: 101).Snedden, however, recommended that curricula be built on "peths," or tiny units, organised around larger "strands," based around adult life roles (Kliebard, 2004: 95).These concepts are found in modern CBE as behavioural objectives or capacities (peths) integrated into whole life-roles or competencies (strands).

Vocational education of today in Zimbabwe still fits into the social efficiency movement of the early 1900s, as it reinforces education as a preparation for a specific social and occupational role. Vocationalism continues to influence the educational system through its emphasis on career preparation for students. Vocationalism had and still has a considerable impact on school curricula more than any other educational movement (Grubb & Lazerson, 2005: 5).Although the vocationalism movement was not directly influential in the framework or methodology of the CBE approach, it is embodied in higher education professional programmes whose purpose is to produce competent professional graduates in an efficient, standardised manner.

2.7.8 Competency-Based Education Movement

The Commonwealth teacher-training study was the first published reference on CBE (Kliebard, 1975: 30).These studyfound that an analysis of teachers' activities and personality traits could be more useful for teacher training than information based on individual opinions (Schilling & Koetting, 2010: 168).Later on, the CBE movement continued to focus more on teacher education curricula in the United States during

the 1970s, and quickly became an international phenomenon of competency assessment (Thompson, 1995: 8; Schilling & Koetting, 2010: 169).A true CBE approach was first introduced in medical education in 1990 when the Society of Teachers of Family Medicine Task Force created 26 competencies under five broad domains (Bell, Kozakowski & Winter, 1997: 704). The concept of standardised basic competence can be traced back to medieval guilds where apprentices learnt skills by working with a mentor. When the student reached the standards set by the trade, they were awarded certain credentials (Horton, 2000: 309).This system of job preparation and use of standards is similar in process to the CBE approach, but a much greater connection between the two can be found in teacher preparation education programmes. Up to 2015, Zimbabwean teachers in general and polytechnic lecturers, in particular, are yet to be trained in this apprenticeship style preparation for vocational courses. Only Teachers' Colleges like Belvedere and Joshua Nkomo train high school teachers albeit on a small scale as more teachers of such calibre are badly needed. However, ironically, that does not stop the responsible Ministry from deploying inadequately qualified educational practitioners to impart and bank a type of knowledge into unsuspecting students.

Mastery learning, similar to CBE, made its appearance after World War I (Harris, Guthrie, Hobart & Lundberg, 1995: 34).During the war, the allies learned that a certain standard of performance had to be reached to vanquish or conquer the enemy (Harris, *et al., ibid.*). Mastery learning records students' progress through a series of instructional stages, advancing to the next stage only when the content of the previous stage had been mastered (Bell, Kozakowski & Winter, 1997: 701). This theory required that the learning environment be manipulated, as illustrated by Thorndike's stimulus-response behavioural theory (Bell, *et al.,* 1997: 703). The mastery learning model is an educational approach that also was a precursor to the principles of the CBE framework.

Consistent with the competencies concept, competency-based assessment must do more than just measure what a student knows. It must also determine whether the student can apply what he or she knows to real life situations (Klein-Collins, 2013: 7). Some Zimbabwean polytechnics still incorporate multiple-choice tests in Higher Examinations Council (HEXCO) courses, which is likely to be inadequate to assess

most competencies. Instead, what is required are assignments that present tasks or situations that students will encounter in life and in the workplace (Klein-Collins, *ibid.*). However, such assignments are cosmetic and superfluous as polytechnics generate marks to ostensibly award students with marks for employment purposes.

Assessment is the core principle of the entire CBE approach. This is because in CBE, the institution must state with authority that its graduates have demonstrated the learning outcomes required for a programme or course. However, institutions often use the credit-hour count as a proxy for student learning (Klein-Collins, Sherman, & Soares, 2010: 25; Shedd, 2003: 8). In CBE, competencies do not represent inputs but outcomes that student assessments can measure (Klein-Collins, 2013: 7). Thus in a polytechnic for example, the skill to weld or wire an electrical series or parallel in domestic or industrial electrifications is a competency or outcome of competency-based education.

CBE programmes emanate from the idea that it is more prudent to focus on outcomes rather than activities, that is what a student knows and can do, than on inputs like how the student learns it, where the student learns it, or how long the student takes to learn it (Klein-Collins, 2013: 8). This break from inputs means that CBE programmes are free to explore new ways to help students learn and new dimensions of what constitutes a course.

Some CBE programmes are designed to allow students to learn in a variety of formats, sometimes drawing on open educational resources (including written materials, videos, recorded lectures, etc.) or hands-on learning (Klein-Collins, *ibid*). Many programmes are also designed for students to progress at their own pace, rather than at a pace dictated by semesters or credit hours. This means that motivated and efficient students can complete their programmes in less time (Klein-Collins, *ibid.*).

Well-designed CBE programmes customise the learning activities of each student according to his or her needs, even though this customisation of student learning is still on the drawing board in Zimbabwean polytechnic curriculum. Students needing additional help with basic mathematics and writing skills, for example, are steered to

modules that help them build those skills before they move on to the activities of the degree programme (Klein-Collins, 2013: 9).

The assessments themselves can be tools for personalising students' learning experiences. Klein-Collins (2013: 10) gave an example of an online learning programme where students master the required competencies, each of which covers a set of topics. Initially, students take a competency-based pretest. If theypassby scoring 86 percent or better, they can skip the lesson entirely and earn points toward those competencies. Students scoring less than 86 percent proceed through that lesson's topics, skipping those they already know. When they have completed all topics in the lesson, students take a posttest, again a competency-based assessment (Klein-Collins, 2013: 10). Figure 2.6below illustrates a hierarchy of post-secondary outcomes.

Figure 2.6: A hierarchy of post-secondary outcomes
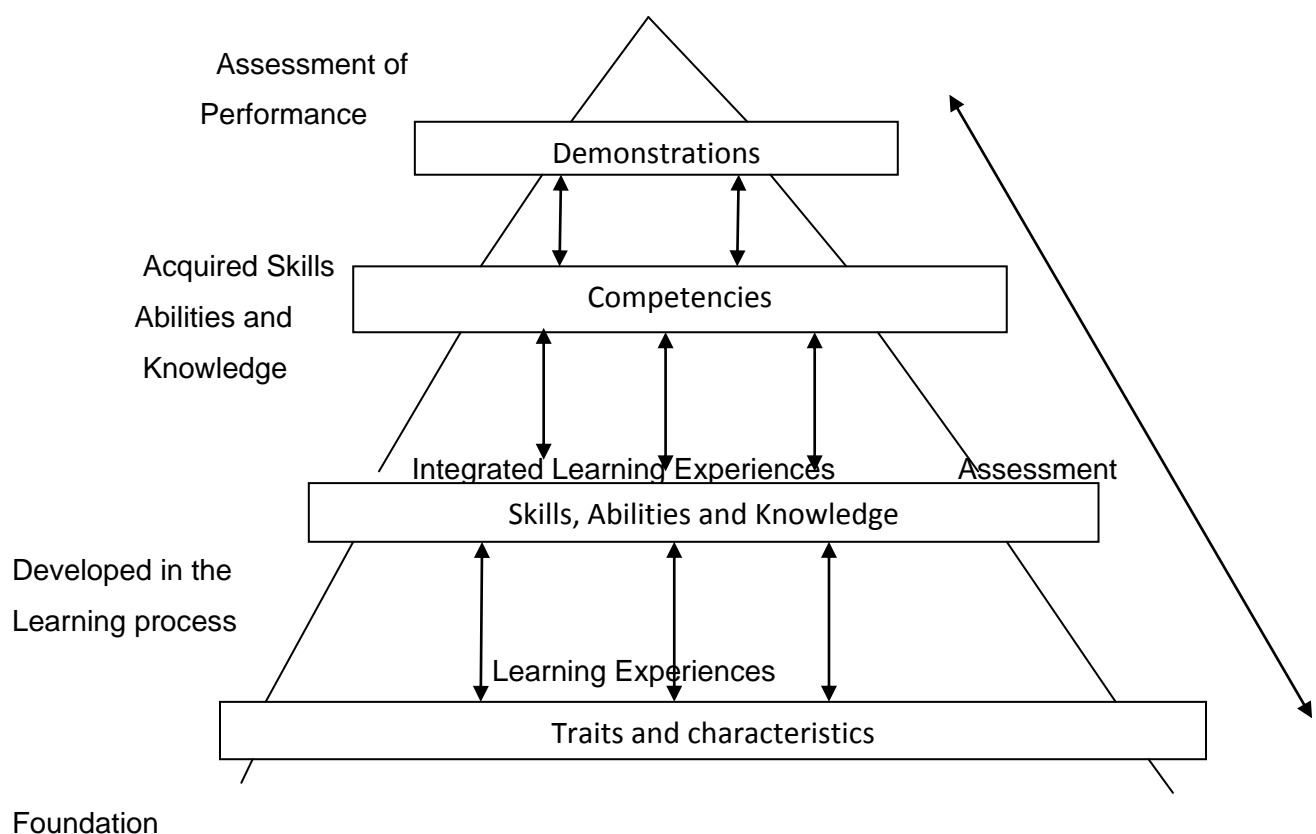
Source: Jones, Voorhees and Paulson (2002).

2.8 RECONCEPTUALISATION OF CURRICULUM

Due to various problems affecting different countries concerning the relevance of curriculum, many curriculum theorists have called for a reconceptualisation of curriculum to address what other curriculum authorities have called a "crisis curriculum". This section discusses how a curriculum can be reconceptualised.

2.8.1 The Nature of Reconceptualisation of Curriculum

Many traditional curriculum critics have criticised classic curriculum models such as the Tylerian model and others as too linear and out of sync with the realities of society. Such critics have called for reconceptualisation of curricula. The function, then, of traditional curriculum writing has been to guide, or in some conscious way to serve, those working in schools. What has tended to be thought of as curriculum theory, most notably, Tyler's rationale, is too theoretical to be meaningful as it is abstract and usually at variance with what occurs in schools.

Pinnar (1977: 10) argued that prescriptive curriculum theories do not reflect the actual process of curriculum change, and therefore are not useful. There is little use for "objectives" and striking use for terms like "platform" and "deliberation". Pinnar concludes that curricularists probably ought to abandon the attempt to make actual curriculum work mirror prescriptive theories, accept "deliberation", as a core aspect of the development process, and apply our intellectual resources to improve the quality of deliberation and making it more effective.

Pinnar (1977: 11) argued that it is not that reconceptualisation does not address issues concerned in the curriculum field's constituency: it is the intent that differs. Its intent is not to guide curriculum development and it offers no prescriptions or rationales. The idea functions as "consciousness raising". Because the difficulties reconceptualists face are related to difficulties in the culture at large, they are not problems to be solved. That conception of a great society solution is one created by technological rationality, which is itself the problem. What is necessary is, in part, fundamental structural change in the socio-economic order. That aspiration cannot be realised by "plugging into" the extant order (Pinnar, 1977: *ibid*). Polytechnic curriculum reconceptualists are not supposed to offer prescriptive solutions to the ills

of Zimbabwean economy but to act as guides or counsellors so that solutions come from the stakeholders themselves.

The reconceptualisation of curriculum is fundamentally an intellectual phenomenon, not an interpersonal-affiliative one. Reconceptualists have no organised group but individualised opinions of specialists who share certain themes but do not share any common interpersonal affiliation (Pinnar, 1977: 12). This requires an understanding of meta-theory and philosophy of science. Without such grounding, it is difficult for curricularists to see clearly their own efforts, and work in the context of the growth of knowledge in general (Pinnar, 1977: 13).

Australian Education Union (2007: 5) explained that knowledge and its organisation, are always in a state of reconceptualisation, and curriculum development needs to reflect this. Though Zimbabwean polytechnic curriculum is not reviewed regularly and is lagging behind most technological developments, Australian Education Union (2007: 5) argued that there is a particular and regular need to look at the curriculum needs of 21st century students who will be spending their lives in a world undergoing rapid and fundamental change (Australian Education Union, 2007: *ibid*). These circumstances require a curriculum which develops different skills and concepts of knowledge from those of the past.

Atkin (1999: 1) argued that as long as education in the school age years is largely publicly funded, political forces will continue to shape schooling. Can this tension between seemingly opposing forces ever be resolved (Atkin, 1999: 1)? What good has come from the politicising of education? What has been detrimental? In order to reconceptualise the curriculum for the knowledge era, it is important to understand how we have come to be where we are, in terms of gains and challenges. Atkin (1999: 2) posed a very contentious question in reference to the purpose of education, "Whose purpose is it?" Is it political purpose or educator's purpose? The same question was asked by Spencer (1984, cited in Apple, 2000: 45).

It will be very difficult to reconceptualise the Zimbabwean curriculum as we are not clear about our agreed purpose. Zimbabwe needs to develop a common sense of purpose, and to be imaginative and deliberate about both the design of the

curriculum and the educational practices that will match the agreed purpose (Atkin, 1999: 7). What we think students should learn, the curriculum, is shaped not only by our mission (our educative purpose), but also by the particular context as well as for the future (Atkin, 1999: 7). Ellyard (1998: 59) argued that the key to success is, therefore, learning. If every society is one which maximises learning with every step into the future, the chance of future success will be greatly enhanced. Ellyard (1998: *ibid*) further explained that a culture of learning has to be developed for future success to be realised. In order to be successful in learning, every educational institution should embrace the concept of 'just in time' learning or a 'just in time' curriculum (Atkin, 1999: 14), so that shortage of resources is minimised.

Due to the use of externally developed curriculum and assessment which are used to determine the extent of success and access to limited tertiary places, many teachers and students seem fixated on what has to be 'covered' rather that what has to be discovered or uncovered (Atkin, 1999: 15). This type of curriculum becomes problematic as external standards are imported from a foreign land and are simply customised to suit local Zimbabwean standards. Education of students becomes 'functional' rather than 'transformative' and teachers' purpose becomes focused on the short-term responsibility of helping students to pass and be admitted into tertiary institutions (Atkin, 1999: *ibid*). It is not usual to find a highly skilled teacher who is able to cultivate deep meaningful learning in a climate characterised by externally-oriented standards, benchmarked by predominantly written, assessment tasks (Atkin, 1999: 15).

There are already many attempts, at the grass roots level, being made to respond to these challenges (Atkin, 1999: 16). Zimbabwe attempted to revamp polytechnic curriculum without any success in 2012. A shift from the traditional bookish approach to competency-based education (CBE) where modularisation was mooted and pilot tested took place. Workshops were lined up to orient lecturers on the CBE modules. However, the project failed to take off due to sheer resistance to change (Robbins & Coulter, 1999: 231) and lack of political will. It has been argued (Moore & Young, 2001: 445; Wheelahan, 2010: 76) that a curriculum model driven by a narrow instrumentalism is based upon economic imperatives, in other words, soft skills required for the workplace rather than the sorts of powerful knowledge required to

critically engage with the world. Moreover, the new curriculum models (Young, 2008: 17; Wheelahan, 2010: 77) fail to differentiate between theoretical and everyday knowledge, depriving students of a basis to develop and critique disciplinary knowledge.

If the standards and the curriculum are to make a difference for students, there is a need to keep each learner and their learning at the centre of all levels of decision making. It is also important for teachers to focus on increasing their students' capacity to learn. How successful students are in achieving goals that matter to them depends on a positive disposition towards learning and on being able to think critically, manage themselves, set goals, overcome obstacles, and get along with others (Biesta, 2009: 40). Active involvement in the assessment of their learning is a key to this. Biesta (2009: *ibid*) refers to this trend as the 'learnification' of education. According to Biesta (*ibid*), this tendency reflects an unproblematised acceptance that learning is a good and a failure to address educational questions such as 'what are we learning?' and 'why are we learning it?'

The new curriculum models are packaged in what some authorities call 'proselytising rhetoric' which should worry educational practitioners because teacher autonomy and professionalism have been largely compromised by managerial guise that they are improving the quality of curriculum (Smyth & Shacklock, 1998: 45; Ball, 2008: 38) and steer up effective curricula outcomes (Biesta, 2009: 39). Even NAMACO and CRADU always devise curriculum changes that are not very meaningful in addressing challenges that havebedeviled Zimbabwean industry, such as operating at around 10% capacity utilisation due to hyperinflation of 231 million percent (Gono, 2008).

2.9 CHAPTER SUMMARY

This chapter has discussed the concept of polytechnic curriculum strategy (PCS) as put forward by prominent curricularists. The propositions advanced by these theorists are examined in the context of Zimbabwean polytechnic curriculum development and implementation. The chapter has discussed of a theoretical framework where complex and social cognitive theories have been explained in

relation to their relevance to effective PCS implementation. The chapter has gone further to discuss and criticise the context of curriculum including the *currere* approach, forms and the models of curriculum planning in relation to Zimbabwean polytechnics' relevance to industry. Efforts to improve Zimbabwean PCS have been contextualised and discussed. Key aspects of curriculum development such as politics of curriculum, competency-based education, and reconceptualisation of curriculum were discussed in detail in relation to the extent to which principals are able to implement polytechnic curriculum strategy.

CHAPTER 3

STRATEGIC LEADERSHIP AND CURRICULUM STRATEGY

3.1 INTRODUCTION

This chapter starts by defining concept of leadership in general. It proceeds to focus specifically on strategic leadership and strategic management processes. Three interdependent leadership actions are explained with relevance to the principal's role of implementing curriculum strategy. The relationship between strategic leadership and strategic management process is examined with respect to the implementation of curriculum strategy. Key strategic leadership actions are discussed in the context of the Zimbabwean polytechnic curriculum strategy.

3.2 THE CONCEPT LEADERSHIP

Leadership as a concept is nebulous and difficult to describe (Thrash, 2012: 1). Nevertheless, an attempt is made to define leadership in this section. According to Killian (2007: 1), leadership is "... any behaviour that influences the actions and attitudes of followers to achieve certain results." Principals' leadership role is to influence lecturers and other staff members to work towards producing a skilled and self-reliant graduate. Leadership is the process of transforming organisations from what they are, to what the leader wants them to become (Dess & Lumpkin, 2003: 353). A critical analysis of this definition reveals that a leader who is dissatisfied with the status quo would want to move the organisation to a more favourable position. Implicit in the definition is the aspect of vision of what the organisation should be in future.

The following section outlines leadership definitions. Leadership is about a distinct role of making things happen to achieve a common goal. It is quite clear that the absence of a leader, leads to a chaotic situation where the operations of any organisation eventually crumble and come to a halt. In a survey of educational leaders conducted in New York, 69% of the principals who responded indicated that traditional leadership preparation programmes were out of touch with the realities of what it takes to run today's schools (Hale & Moorman, 2003: 5). To a large extent,

the effectiveness of polytechnic curriculum depends on the principal's strategic leadership competencies, which very often are found wanting.

"Leadership is the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives" (Yukl, 2006:3).

Bennis (1989: 7) distinguished between leadership and management as follows:

> Leaders are people who do the right things. Managers are people who do things right. There is a profound difference. When you think about doing the right things, your mind immediately goes toward thinking about the future, thinking about dreams, missions, visions, strategic intent, purpose. But when you think about doing things right, you think about control mechanisms. You think about-to. Leaders ask the 'what' and 'why' questions, not the how questions.

It is rather difficult to find both a leader and a manager in one person. Practically, one may be more inclined to leadership than to management, or vice versa. Theoretically, one is expected to wear both leadership and management hats. In polytechnics, for example, some principals may focus more on control mechanisms in systems and fail to have a strategic focus of what type of graduate may be needed in the next ten years.

Storey (2005: 89) distinguished between "leadership in organisations" and "leadership of organisations" by saying that the former refers to team leaders and the latter to organisational or strategic leaders. Strategic leaders are those leaders responsible for formulating vision, mission and strategic objectives of the organisation as well as designing the structure of the organisation (Dess & Lumpkin, 2003: 354; Storey, 2005: 90).

Mintzberg (2004: 22) argued that the separation of leadership and management is dysfunctional and that leadership should be diffused throughout the whole organisation. In other words, there is no time in the running of polytechnics when

principals dichotomise leadership and management, rather these two occur concurrently. Polytechnic projects are implemented through effective strategic leadership. Zaccaro and Horn (in Storey 2005: 90) found out that less than 5% of leadership literature has focused on strategic leadership. It is also true that literature on strategic leadership in curriculum effectiveness is still scarce, let alone on the Zimbabwean polytechnic education sector. This justifies the need to carry out this research.

3.3 LEVELS OF LEADERSHIP

According to Dent (2003:15), leadership basically has three levels, that is: strategic, operational and team.

- Strategic leaders: These are leaders at the top level responsible for a range of organisational functions and for contributing to major decisions.
- Operational leaders: These are responsible for a functional area of the organisation, all the human capital in that functional area, and for contributing to decisions in their own specialist area.
- Team leaders: These are leaders who operate at team level and whose prime responsibility is the people who work with them and the achievement of the goals for which they are jointly responsible.

According to Stoner, Freeman and Gilbert (2009: 292), middle level and lower leaders are responsible for implementation of strategic plans and for devising operational plans. It is the responsibility of the founder member(s) of the organisation to spell out the mission statement while top managers, with the support of middle managers, craft strategic plans for the organisation (Stoner*, et al.*, 2009: 292). Strategic leaders can be individuals at different levels of an organisation who assist with the formulation of strategy and with its implementation and control (Hitt*, et al.*, 2007: 24). This suggests that all the three levels of leaders perform different strategic leadership functions according to the level they occupy in the organisation. Bass (2007: 34) stresses that the strategic leadership role is important for the CEO and for other senior executives.

Polytechnic principals and their deputies act as chief executives at institutional level, and they are helped by heads of department who head functional or specialist areas such as commerce, automotive engineering, mechanical engineering, electrical engineering and civil engineering department. According to Dent (2003: 15), heads of department are operational leaders responsible for leading "...all the human capital in that functional area, and for contribution to decisions in their own specialist area". The human capital in this case refers to lecturers and support staff in a particular department. It is the quality of their strategic decisions that contributes to effective polytechnic curriculum implementation.

Team leaders in polytechnics are lecturers-in-charge who supervise small groups of lecturers in particular departments and are also supervised by operational leaders or heads of department (Dent, 2003: 15). Lecturers-in-charge assist in enrolling students in their respective areas, supervise schemes of work, and ensure that lecturers have adequate resources that facilitate learning. They are supposed to assist in ensuring that a high quality of curriculum instruction is delivered. However, some lecturers-in-charge lack even instructional skills to supervise lecturers on curriculum issues.

3.4 DIFFERENT TYPES OF LEADERSHIP

Literature on leadership shows a progressive pattern, which starts from focusing on the attributes and characteristics of a leader, then concentrates on behaviour and later emphasises on the contextualised nature of the leadership (Riaz & Haider, 2010: 30). Leadership is a key ingredient in the implementation of any project in organisations. Bolden, Gosling, Marturano and Dennison (2003: 6) posited that leadership theory has evolved from what they called Great Man Theories: trait theories, behaviourist theories, situational theories, contingency theories, transactional theory and transformational theory.

3.4.1 Transactional Leadership

Burns (1978: 20) explained that transactional leadership represents the everyday interactions between manager and follower where a follower is offered an incentive for compliance to achieve organisational objectives. Robbins and Coulter (1999:

534) explained that transactional leaders "guide or motivate their followers in the direction of established goals by clarifying role and task requirements." Transactional leaders use rewards as a control mechanism to carry out the exchange relationship explicitly established to externally motivate followers (Liu, 2007: 3). For example, polytechnic principals recommend that staff members be awarded incentives by the Civil Service Commission (CSC), though their hands are tied and they do not go beyond recommendations. Principals work within the confines of Treasury Instructions which stipulate how public resources should be used. It will be up to CSC to implement recommendations or not. Transactional leaders who use rewards to exchange for followers' compliance only develop followers' extrinsic motivation. Economic exchange can only externally motivate followers to the extent that specific behaviour is directly rewarded and the amount of rewards is more than the cost of engaging in the behaviour (Liu, 2007: 5).

3.4.2 Transformational Leadership

Glanz (2006a: 78) identified transformational leadership as more effective than contingency leadership styles in motivating members to achieve organisational goals. Northouse (2003: 131) explained that transformational leadership was developed by Burns (1978). Burns (1978: 20) defined transformational leadership as the process whereby an individual engages with others and creates a connection that raises the level of motivation and morality in both the leader and the follower (Northouse, 2003: 131). Burns (*ibid.*: 4) asserted that "The result of transforming leadership is a relationship of mutual stimulation and elevation that converts followers into leaders and may convert leaders into moral agents".

Northouse (2003: 132) clarified that transformational leadership theory is noticeable in the four dimensions of idealised influence, inspirational motivation, individualised consideration and intellectual stimulation. Northouse (2003: 132) further explained that idealised influence describes leaders who are exemplary role models for associates. Principals ought to exhibit professional behaviour that can be imitated by subordinates. However, an observation as an insider-researcher reveals that rarely do they exhibit instructional skills and leadership as they are mostly busy with administration work. Leaders with idealised influence can be trusted and respected

by associates to make good decisions for the school. Inspirational motivation describes leaders who motivate associates to commit to the vision of the school. Whilst there is a desire by principals to motivate subordinates to commit to the vision of institutions, this goes as far as verbal positive reinforcements only. Matching exceptional performance with tokens of appreciation needs Permanent Secretary's approval and this is fraught with red tape. Leaders with inspirational motivation encourage team spirit to reach goals of increased revenue and market growth for the school. Intellectual stimulation describes leaders who encourage innovation and creativity through challenging normal beliefs or views of a group.

Transformational leaders question assumptions and beliefs and encourage followers to be innovative and creative, approaching old problems in new ways (Barbuto, 2005: 27). Individualised consideration describes leaders who act as coaches and advisors to the associates. They help associates to reach goals that help both the associates and the school. Ross and Gray (2006: 800) argued that schools with higher levels of transformational leadership have higher collective teacher efficacy (CTE), greater teacher commitment to school mission, school community, and school-community partnerships, and higher student achievement. CTE stems from teacher self-efficacy (Bandura, 1997: 2) that is "the perceptions of teachers in a school that the efforts of the faculty as a whole will have a positive effect on students" (Goddard, Hoy & Hoy, 2000: 480).

Transformational leaders may also motivate followers to transcend their own interests for some other collective purpose (Feinberg, Ostroff & Burke, 2005: 471), which is a good antecedent for collective teacher efficacy. Robbins and Coulter (1999: 534) posited that transformational leaders:

> pay attention to concerns and developmental needs of individual followers;
> they change followers' awareness of issues by helping those followers to
> look at old problems in new ways; and they are able to excite, arouse, and
> inspire followers to put in extra effort to achieve group goals.

Yukl (1998: 325) noted that "… transformational and transactional leadership are distinct but not mutually exclusive processes, and … that the same leader may use

both types of leadership at different times in different situations." A lecturer with the highest pass rate may be awarded with a token of appreciation (transactional leadership), while another one with a skill of coming up many innovations might be supported with necessary scientific equipment to make his/her dream a success.

In Zimbabwean polytechnics, most lecturers' developmental needs are self-funded. This PhD research programme is self-financed as the Ministry of Higher and Tertiary Education, Science and Technology Development cites lack of financial resources. However, one is promised that fees or educational costs will be refunded on completion of the programme, although previously those who completed their programmes were never refunded money they spent on tuition fees and other related expenses. The notion put forward by transformational leadership that followers are "inspired to put in extra effort to achieve group goals" (Burns, 1978: 20), seems far-fetched. This is because Zimbabwean polytechnic lecturers are not getting fair remuneration for their work.

3.4.3 Critical Leadership and Pedagogy

To define critical leadership as pedagogical helps to move us away from a hierarchical and individualistic banking model of leadership. Instead, sucha perspective movesus towardpracticesthatengageleadershipasasocialphenomenonthatexistsin community and evolves pedagogically, through communal structures of participation (Darder, 2013: 15).

Freire (1971: 72) argued that "apart from inquiry, apart from praxis, individuals cannot be truly human. Knowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry human beings pursue in the world, with the world, and with each other".

Freire (1998: 53) further asserted that, "Human existence is, in fact, a radical and profound tension between good and evil, between dignity and indignity, between decency and indecency, between the beauty and the ugliness of the world". The unaccommodative and undemocratic nature of education, especially polytechnic education, has resulted in students settling for an inferior type of education whose

skills are not relevant to the needs of the Zimbabwean society. To this end, it is argued that:

> An unwillingness to contend with deep moral questions within educational institutions and the larger society has resulted in the bureaucracy of schools, where schools are ruled by absolute, top-down, and expedient policies, which do little to attend to the larger social and institutional conditions, of which social problems are a symptom. For example, good educators, human development folks, and even neuroscientists, all understand that human beings, and particularly children, need physical contact to connect and enhance the maturation in the brain. Hence, physical touch can be linked, neurologically, to healthy brain development (Darder, 2013: 15).

A critical theory of leadership must be founded on a notion that leadership, just like education, is a political activity, requiring efforts toward structural change and social transformation. As such, it also encompasses a question-posing approach, which recognises that culture and power are inextricably linked to any system of organisation (Darder, 2013: 15). For instance, principals should be aware that they wield some form of political power in their space of operation and are therefore responsible for making things happen towards social justice with students and always critically question the status quo.

3.4.4 Strategic Leadership

The leadership style that underpins this research is strategic leadership because it is specifically mentioned as one of the key factors of effective implementation of strategy in any type of organisation. Hitt, Ireland and Hoskisson (2007: 350) argued that effective strategy implementation depends largely on effective strategic leadership. Crafting and executing strategy that leads to an organisation's success is reckoned as the most trustworthy proof of good management (Nyambayo, 2008: 35).

McNeilly (1996: 7) provided several strategic principles for successful business particularly with regard to dealing with the competition. He advocated that rather than using precious resources to eliminate the competition, the resources should be focused on exploiting the organisation's competitive advantage, capitalising on the

competition's weaknesses and creating opportunities while at the same time playing fair.

These principles are quite relevant to how principals can strategise in order to effectively implement polytechnic curriculum. Although polytechnics are government institutions, they are in competition with each other. All the above strategies suggested by McNeilly (*ibid.*) apply to polytechnics. Any competition may be viewed as a game where deception and attacking one's weaknesses are some of the strategies that make one effective. Some principals may be weak in facilitating the production of civil engineers or mechanical engineers. This might be a chance for a vigilant principal to capitalise on weaknesses of competitors and produce more of these skills.

Bass (2007: 36) summarised the functions of strategic leaders as follows:

- formulate the organisation's goals and strategies;
- develop structures, processes, controls and core competencies for the organisation;
- manage multiple constituencies;
- choose key executives;
- groom the next generation of executives;
- provide direction with respect to organisational strategies;
- maintain an effective organisational culture;
- sustain a system of ethical values; and
- serve as the representative of the organisation to government and other organisations and constituencies as well as negotiate with them.

In Zimbabwean polytechnics for example, principals develop strategic plans for their institutions (cf. 3.7.1.1) which encompasses vision and mission statements. As principals are at the core part of the organisation, they develop and maintain processes and structures of the organisation. Though most policies are cascaded down by the Ministry, they develop and implement their own local operational policies. All the activities listed by Bass (2007: 36) are implemented as the principal thinks strategically to move the organisation in his or her desired direction. The practical outworking of each of the above functions makes each polytechnic effective.

3.5 THREE INTERDEPENDENT LEADERSHIP ACTIVITIES

Dess and Lumpkin (2003: 354) posited that successful leaders must recognise three interdependent activities that must be continually re-assessed for the organisation to succeed. The activities are presented diagrammatically in Figure 3.1 as follows:
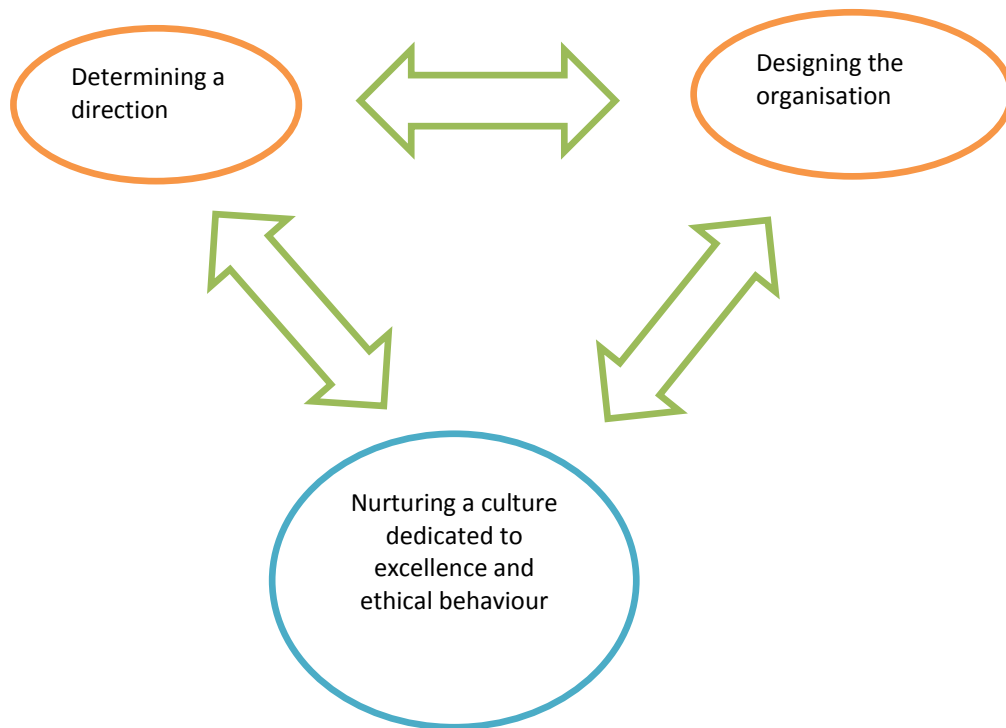
Figure 3.1: Three interdependent activities of leadership

Source: Dess and Lumpkin (2003: 354).

3.5.1 Determining a Direction

Leaders require an ability to scan the environment to develop knowledge of all the organisation's stakeholders, for example, customers, suppliers, shareholders, and other salient environment trends and events and integrate this knowledge into a vision of what the organisation could become. Developing a strategic vision provides many benefits: a clear future direction, a framework for the organisation's mission and goals, and enhanced employee communication, participation, and commitment (Dess & Lumpkin, 2003: 355; Hitt*, et al.*, 2007: 385). If the above attributes are

practically achievable, then curriculum strategies would be realised. Nedelea and Paun (2009: 97) concurred with Dess and Lumpkin (*ibid.*):

> Defining the business as it currently is and as it will be in the future is a necessary first step in establishing a meaningful direction and developmental path for the organisation. Management's view of what the organisation seeks to do and to become over the long-term is the organisation's strategic mission. The strategic mission broadly charts the future course of the organisation.

Understanding the core business of polytechnics, that is, their mission statements and what they hope to achieve in the future (vision) helps to have a clear direction of what resources to acquire from which organisation and why. The idea that some polytechnic principals who lack clear direction also lack sound strategic leadership skills cannot be overemphasised.

3.5.2 Designing the Organisation

Leaders must be actively involved in building structures, teams, systems, and organisational processes that facilitate the implementation of their strategic vision (Thompson & Strickland, 2003: 357). Poor organisational design can result in a myriad of problems including the following:

- Inadequate understanding of responsibility and accountability among leaders and employees;
- Reward systems that fail to motivate individuals toward common objectives;
- Poor or inappropriate budget and control systems; and
- Inappropriate or insufficient mechanisms to integrate and coordinate activities across the organisation (Dess & Lumpkin, 2003: 356).

Organisational design should be about developing and implementing corporate strategy (Bryan & Joyce, 2007: 25). Corporate strategy, according to the classic definition, consists of the actions a company takes to gain competitive advantage (Bryan & Joyce, 2007: 21). Management must ensure that workers direct and organise their own work so that it furthers the interests of the shareholders, not just

their personal interests (Bryan & Joyce, 2007: 25). Shareholders in this research are taken to mean any polytechnic stakeholders such as students, parents, guardians, the government and businesses. When such stakeholders are not satisfied with the service they get from polytechnics, then principals' leadership competencies are questionable.

Principals as strategic leaders may lack skills to put in place adequate reward systems if narcissism (Bass, 2007: 42) takes centre stage. Narcissism may be described as extreme selfishness, with a grandiose view of one's talents and a craving for admiration (Blair, Hoffman & Hellend, 2008: 254). Some principals have a proclivity for narcissism, especially when it comes to rewarding staff members as principals seek to enrich themselves with panel-beaten policies. Deliberate inadequate budget and controls systems are put in place as most principals blame lack of funds and stringent policies. In 2009, the Zimbabwean Ministry of Higher and Tertiary Education introduced the commercialisation policy of charging some fees for polytechnic services and products and principals would not complain about a shortage of funds. Proceeds from funds realised from the sale of polytechnic services and products may be used to incentivise staff members and improve polytechnic implementation of curriculum strategies.

3.5.3 Nurturing a Culture of Excellence and Ethical Behaviour

Ethics may be defined as a system of right and wrong. Ethics assist individuals in deciding when an act is moral or immoral, socially desirable or not (Pearce and Robinson, 2005: 61). Business ethics are principles of conduct within organisations that guide decision making and behaviour (David, 2001: 19). Sources for an individual's ethics include religious beliefs, national and ethnic heritage, family practices, community standards and expectations, educational experience, friends and neighbours. Business ethics is the application of ethical standards to commercial enterprise (Dess & Lumpkin, 2003: 368).

Strategic leaders are responsible for developing, communicating, reinforcing and emphasising ethical practices of the organisation (Ireland & Hitt, 1999: 57; David, 2001: 19). Strategic leaders should never assume that the organisation conducts its

business in an ethical manner or that all employees at all levels are able to handle difficult ethical issues (Thompson & Strickland, 2003: 320). Thus it is a prerequisite of strategic leaders to be unequivocally committed to ethical issues. An ethical issue that would be pertinent in this instance would be proper usage of resources, and ensuring that students receive the services for which they have paid. This would imply training and equipping of lecturers and facilitators as well as the optimal provision of technical resources in workshops and laboratories. Both these endeavours would assist polytechnics to ensure that their strategic goals, derived from their vision and mission statements, are achieved.

Ethics in the running of HEXCO examinations seems questionable as indicated in the examples below:

- Some cheating cases during examinations are recorded by invigilators and forwarded to the HEXCO board. This board consists of principals of polytechnics who will finally preside over such cases. Surprisingly, some of the cheating cases are never solved. One wonders why invigilators are not empowered to disqualify obvious cheaters since they would have acknowledged the wrong doing by writing a confirmatory report to support the offence.
- In some instances, hand-picked examiners are given the task of setting papers in curriculum areas they know nothing about. At Harare Polytechnic, for instance, a technician in electrical engineering might be asked to set a paper in Human Resources Management.
- Past examination papers are copied in setting 'new examination papers' by incompetent examiners and the same items are recycled with no checks by some principals.

Leaders who exhibit high ethical standards become role models for others in the organisation and raise its overall level of ethical behaviour (Dess & Lumpkin, 2003: 369). Leaders and top executives must accept personal responsibility for developing and strengthening ethical behaviour throughout the organisation. They must demonstrate that such behaviour is central to the vision and mission of the organisation. Several elements must be present and reinforced for an organisation to

become a highly ethical organisation: role models, corporate credos and codes of conduct, reward and evaluation systems, and policies and procedures (Dess & Lumpkin, 2003: 357).

Apart from Dess and Lumpkin's (2003: 354) three interdependent leadership activities discussed above, Shrivastava and Nachman (1989: 51) identified four strategic leadership patterns. These are: (a) entrepreneurial, (b) bureaucratic, (c) political, and (d) professional.

3.5.3.1 Entrepreneurial leadership

This strategic leadership pattern consists of four variables:

- leadership makes roles;
- personal traits;
- personality and charisma; and
- direct control (Shrivastava & Nachman, 1989: 51).

This suggests organisations in which an individual assumes the role of guiding the organisation's strategy. He possesses the classic leader traits (e.g. confidence, entrepreneurship, energy, aggressiveness, knowledge,) and uses his personality and charisma to influence people. According to Takala (2005: 50), characteristics that differentiate charismatic leaders from noncharismatic ones are seen by Robbins (1992: 151) as self-confidence, complete confidence in their judgment and ability, a vision, idealised goal that proposes a future better than the status quo, strong convictions in that vision, willingness to take high risks and engage in self-sacrifice to achieve their vision, behavior out of the ordinary as well as radical change taking instead of caretakers of the status quo (Takala, 2005: 50). Prototypicality is out of charismatic leadership, because it corresponds to normative expectations, to what is anticipated. Charisma is based on the aura of the exceptional/exemplary quality of a leader (Steyrer, 1998: 811).

The leader makes roles for others and controls their performance in these roles through direct supervision (Shrivastava & Nachman, 1989: 61). Most leaders who

are successful are strong-willed people who dominate all aspects of their organisations. On direct control, such leaders run their companies somewhat autocratically, with little delegation of authority or participation in strategic decisionmaking (Shrivastava & Nachman: *Ibid*).

The argument is that the entrepreneurial role of a principal is driven by some personality traits, which is rather far-fetched. If this is the case, then this role, though necessary, is very difficult to implement as traits by their nature are inborn characteristics. So a principal without such traits cannot be an entrepreneur. To a certain extent, this is true as it can be observed that the level of entrepreneurship varies from institution to institution, depicting differences in such personality characteristics.

3.5.3.2 Bureaucratic leadership

Bureaucracy is characterised by giving people defined roles and expecting everyone in an organisation to operate according to standardised rules (Shrivastava & Nachman, 1989: 51).

A bureaucracy is necessary for organisations like polytechnics as decisions made by principals have to be standardised. Though bureaucratic policies tend to be rigid, absence of such policies, like treasury instructions, will give rise to abuse of public funds. Approval procedures have to be sought before a principal implements a novel project such as buying vehicles for visiting students on industrial attachments. Johnson and Libecap (1994: 1) lamented the problems of USA bureaucratic federal procedures when they said, "the general public views federal employees as aloof, uncaring bureaucrats who are unresponsive to their requests." This view seems similar to how polytechnic lecturers view the inaccessibility of their principals due to bureaucratic procedures that have to be followed.

3.5.3.3 Political leadership

Political leadership is manifestly and essentially a phenomenon of power because it consists of the ability of the one or few who are at the top to make others do a

number of things, positively or negatively, that they would not or at least might not have been done otherwise (Blondel, 1987: 2).

It represents organisations where neither an entrepreneurial nor a bureaucratic orientation guides strategy-making and operates by means of coalitions of organisational managers, where one such coalition might be dominant and therefore is able to influence strategy to a greater extent than other coalitions (Shrivastava & Nachman, 1989: 51). Within the coalition there is reciprocal interdependence (each member brings his/her own strengths to the coalition) among members and power is shared. The coalition as a whole controls the whole organisation or division. This reciprocal interdependence suggests that principals act collegially to solve organisational problems. This idea of interdependence might be analogous to the idea that was muted by Southern African countries when they formed Southern African Development Community (SADC). In this regard, principals collectively and strategically lead their polytechnics as a coalition. However, the idea that neither entrepreneurial nor a bureaucratic orientation guides strategy-making may be problematic because even within this type of coalition, bureaucratic rules may not be ignored. Rather, since principals might differ in their managerial experience, helping each other in adhering to rules of polytechnic governance might work effectively.

3.5.3.4 Professional leadership

According to Shrivastava and Nachman (1989: 51), professional leaders exercise control over information, operate on a more individual basis rather than by means of coalitions and may create new rules and ways of doing things. This relates quite closely to entrepreneurship.

These variables suggest that strategic leaders like principals should possess a high degree of such characteristics as expertise, autonomy, ethics, and commitment. Creation of new rules in the governance of polytechnics, though possible, may not be that easy in the Zimbabwean situation where a principal's initiatives have to follow bureaucratic procedures. There are organisational situations in which strategic leadership is a semi-autonomous process which is guided by professional cultural norms and structural constraints.

3.6 STRATEGIC LEADERSHIP AND STRATEGIC MANAGEMENT PROCESS

Freedman and Tregoe (2003: ix) suggested that strategic leadership ensures effective implementation of the strategic management process. Effective strategic leaders are not only competent in crafting the vision, mission statement, and strategic objectives but are also competent in implementing strategies. Figure 3.2 illustrates the connection between strategic leadership and the strategic management process.

Figure 3.2 Strategic leadership and strategic management process

```
                    ┌─────────────────────┐
                    │ Effective Strategic │
                    │     Leadership      │
                    └─────────────────────┘
                               │
          Shapes the formation of and influences
                               │
              ┌────────────────┴────────────────┐
     ┌─────────────┐                      ┌─────────────┐
     │  Strategic  │                      │  Strategic  │
     │   intent    │                      │   Mission   │
     └─────────────┘                      └─────────────┘
              └────────────────┬────────────────┘
                    ┌─────────────────────┐
                    │ Successful strategic│
                    │      actions        │
                    └─────────────────────┘
                               │
         ┌─────────────────────┴─────────────────────┐
  ┌─────────────┐                            ┌─────────────────┐
  │Formulation of│                           │ Implementation of│
  │  Strategies  │                           │    strategies    │
  └─────────────┘                            └─────────────────┘
         └─────────────────────┬─────────────────────┘
                    ┌─────────────────────┐
                    │     Strategic       │
                    │   competitiveness   │
                    │ Above-Average returns│
                    └─────────────────────┘
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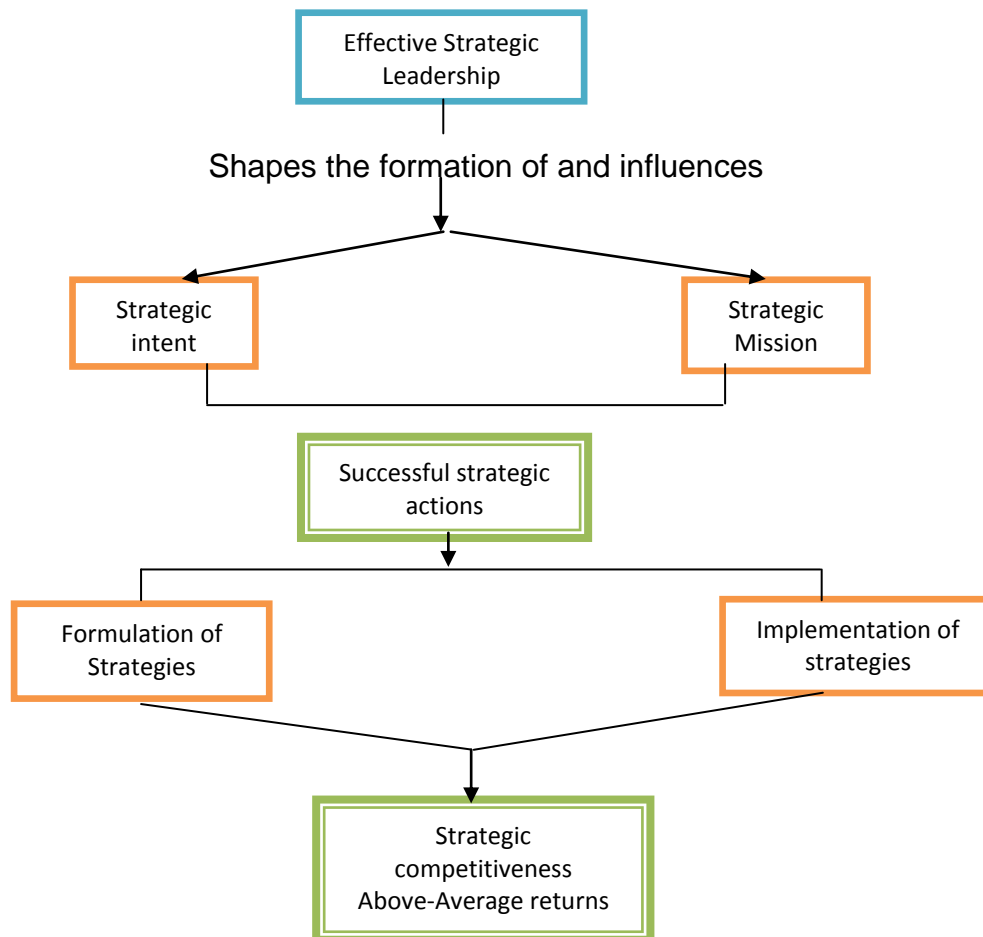
Source: Hitt, Ireland and Hoskisson (2007: 375).

An organisation's ability to achieve strategic competitiveness and earn above average returns is compromised when strategic leaders fail to respond appropriately and quickly to changes in the complex environment (Hitt, *et al.*, 2007: 376).

3.6.1 Strategic Intent

Strategic intent is a critical ingredient of the strategic direction of successful organisations. According to Hamel and Prahalad (1993: 76), strategic intent "...envisions a desired leadership position and establishes the criterion the organisation will use to chart its progress." Grattan (2002: 78) argued that strategic intent is clear about ends, it is flexible as to means and as a consequence it leaves room for improvisation. The fact that strategic intent emphasises ends and is silent on the means to an end implies that the strategic leader can improvise. Thus creativity and innovation should be exercised in achieving the desired end.

Strategic intent is not the same as the vision of an organisation. A vision statement answers the question: "What do we want to become?", and serves as a roadmap for determining the direction of the organisation (David, 2001: 50; Kaplan & Norton, 2004: 32). Vision statement is also referred to as a 'dream,' 'perfect future,' or 'enduring promise' (Ehlers & Lazenby, 2004: 49).

The most evident difference between vision and strategic intent is the degree of collectivity (Mantere & Sillince, 2007: 408). According to Kotter (2002: 143), strategic intent is a phenomenon circulated at multiple organisational levels, while a vision is specifically a top management leadership tool often ascribed to single visionary leaders. On the other hand, visionary leadership according to Mintzberg, *et al.* (2009: 141) implies a strategic leader with a personal vision for the future of the organisation.

The researcher observes that polytechnic principals have dreams that manifest in vision statements. The idea is that each polytechnic graduate should be well placed to be comparably employable to a university graduate. The colonial mindset legacy that each polytechnic principal is fighting is that a university graduate is better than his polytechnic counterpart. Better in what exactly? Perhaps this could be academically. However, Zimbabwe now needs skills and self-sustainability in

graduates rather than academic prowess that does not translate into skills needed in industry (Mbizvo, 2013).

3.6.2 Strategic Mission

A strategic mission is derived from the vision statement and deals with the question: "What is our business and what sets us apart from other similar organisations?" A mission statement describes an organisation's product, market and technological areas of emphasis in such a way that it reflects the values and philosophies of the strategic leaders (Pearce & Robinson, 2005: 26). Thompson and Strickland (2003: 6) differentiated a vision from a mission statement and explained that the main concern of the vision statement is with the organisation's future business scope, in other words, "where we are going," whereas the mission statement deals with an organisation's present business scope, that is, "who are we and what we do."

3.6.3 Formulation of Strategies

A strategy is not a detailed plan of action or a comprehensive set of choices and decisions; it is a plan of action boiled down to its most essential choices and decisions (Van den Steen, 2012: 1). Strategy is a blueprint of all the important entrepreneurial, competitive and functional area actions that are to be taken in pursuing organisational objectives and positioning the organisation for sustained success (Nedelea & Paun, 2009: 98).This concept of strategy takes into account a business-like idea that should be taken into account by polytechnics for self-sustainability.

"The task of formulating the strategy entails taking into account all of the relevant aspects of the organisation's internal and external situation (environmental scanning), and coming up with a detailed action plan for achieving the targeted short-run and long-run results" (Nedelea & Paun, 2009: 98). This can be illustrated by linking of internal (polytechnic core competences of effectively implementing the curriculum) with external situations (interpretation of industry expectations and effectively mobilising adequate resources) resulting in making polytechnics relevant (Robbins & Coulter, 1999: 244).

3.6.4 Implementation of Strategies

This section discusses various ways of implementing curriculum strategy.

3.6.4.1 The nature of strategy implementation

According to Thompson and Strickland (2003: 356), "...implementing and executing strategy entails converting the organisation's strategic plan into action and then into results." Noble (1999:119) defined strategy implementation as "...the communication, interpretation, adoption, and enactment of strategic plans." Strategy implementation is often called the action stage of the strategic management process, as it requires the mobilisation of managers and employees at all levels of the organisation to convert the formulated strategy into action and results (David, 2001: 6).

There are certain competencies CEOs should possess in order to be more effective in implementing strategies. Conceptual capacity is required in executives as they deal with issues of cognitive complexity – external and internal organisational environments and novel, unstructured and ill-defined problems (Bass, 2007:40). Executives must be able to display behavioural complexity – the ability to enact different and sometimes opposing roles. They must attend to social complexities when proposing actions. Senior executives are likely to be 'boundary spanners' and need to deal with subordinates from different cooperating and competing groups, managers, employees, and functions (Zaccaro in Bass, 2007: 40). Behavioural complexity by polytechnic principals seems to be a pipe dream as observations show that many of them are just armchair administrators who wait to respond to eventualities from the environment.

A high level of conceptual development is needed by senior executives. Their cognitive capacity should enable them to construct a perspective on a broad and complex understanding of events inside and outside the organisation and to handle highly complex managerial work (Bass, 2007: 40). Senior executives must deal with cognitive complexity (Bass, 2007: 40). Bass (*ibid.*) added that cognitive capacity, self-efficacy and the power motive are personal requirements for competence in strategic leadership. Principals who lack these personal requirements in strategic leadership are highly likely to fail in SWOT analysis resulting in a mismatch between

environmental demands and internal organisational capabilities. Bandura's (1997: 2) social cognition theory is the origin of teacher self-efficacy, which is the belief in one's capabilities to organise and execute the courses of action required to produce given results. Ross and Gray (2006: 801) posited that individuals who feel that they will be successful on a given task are more likely to be so because they adopt challenging goals, try harder to achieve them, persist despite setbacks, and develop coping mechanisms for managing their emotional status. Polytechnic lecturers, for example, will have their efficacy developed to greater heights by the level of strategic and transformational leadership styles exhibited by their principals.

Cognitive capacity is involved in the goal of adding value to the organisation, with systematic and structured analysis of the state of the organisation now and the future desired state. Strategically-oriented CEOs focus on what comes next and try to make it happen (Bass, 2007: 41). The researcher is of the view that most principals seem not to be strategically-oriented as strategies developed in strategic planning workshops are not disseminated and discussed with the staff members who would not have attended the workshop. This tends to be a talk show.

3.6.4.2 Organisational structure and strategy implementation

The organisational structure specifies the organisation's formal reporting relationships, procedures, controls, authority and decision-making processes. An organisational structure can therefore be regarded as the framework which facilitates strategy implementation in order to achieve organisational objectives (Hitt, *et al.*, 2007: 346; Freedman & Tregoe, 2003:137). This relates to social cognitive theory in that structure is an important aspect of the environment of a polytechnic. Most Zimbabwean polytechnics created a "Dean of Studies" post although the Civil Service Commission did not recognise the importance of such a post in dealing with the academic side of the curriculum. Principals were later asked to remove such a post from their organisational charts. Figure 3.3 below illustrates the current polytechnic structure:

Figure 3.3: Polytechnic structure

Principal

Vice Principal

Head of Division   Administration officer   Accountant   Human
Resources Officer
Head of Department   Assistant admin officer   Transport officer

Lecturer in charge   Admin Clerks   Driver
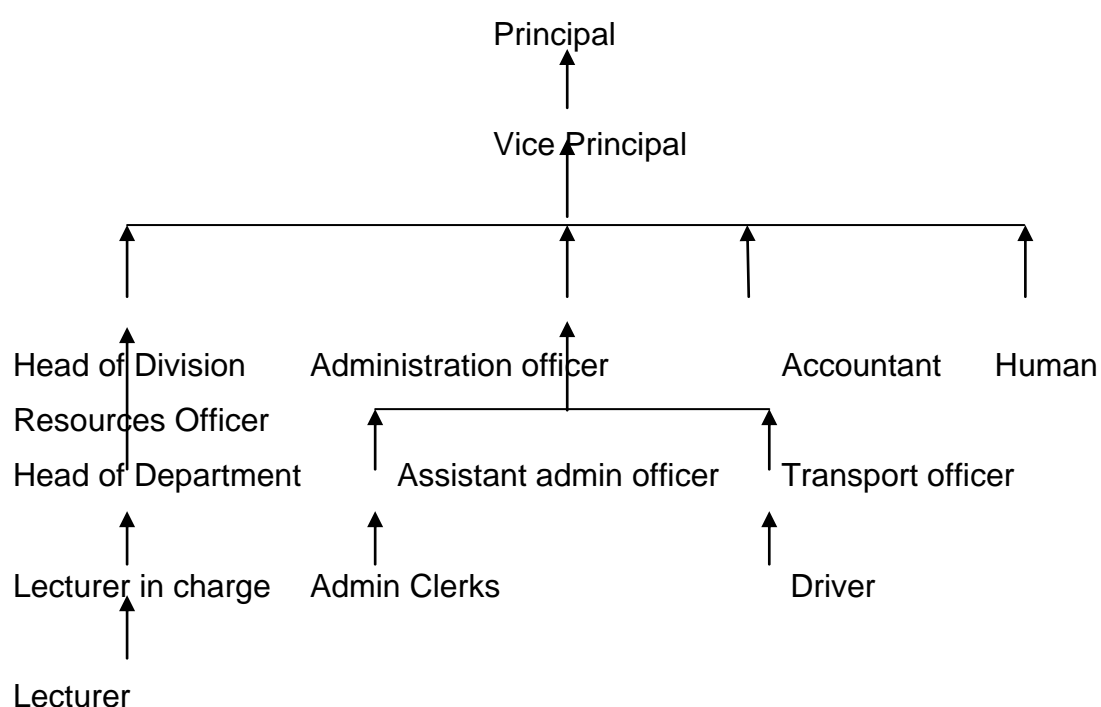
Lecturer

Among the academic staff, the principal and the vice principal are the only substantive posts. The head of division, department and lecturer in charge are appointed by the principal through the human resources officer. These posts are advertised internally every two years. This seems objective although some appointments are not made on merit. This is evident in that some inexperienced and less qualified lecturers are appointed to head departments and divisions.

Changes in the external environment necessitate changes in the strategies. In turn, changes in strategy often require changes in the manner in which an organisation is structured, as the existing organisational structure may become ineffective (David, 2001: 244). The Zimbabwean Civil Service Commission (CSC), the civil service employer of polytechnic staff members, abandoned the appointment of substantive Heads of Departments (HODs) in polytechnics because of the heavy burden it caused on the national budget. This culminated in a weak structure of voluntarily and locally appointed HODs that are expected to implement the curriculum effectively. Some of these HODs lack lecturing and administrative experience and may have been chosen because they are 'loyal' to the principal. Generally, there are inconsistencies in applying this policy.

The organisational structure specifies the organisation's formal reporting relationships, procedures, controls, authority and decision-making process (Hitt, *et al.*, 2007: 346). Chandler (in Kavale, 2012: 62) concluded that, "... structure follows strategy" implying that structure must be flexible and adaptable as strategy changes. This is because an old structure will be ill-equipped to accommodate the change created by the new strategy. The extent to which strategy and structure are aligned, influences the effective implementation of polytechnic curriculum strategy. Hitt, *et al.* (2007: 346) posited that the ability to select an appropriate strategy and match it with an appropriate structure is considered to be an important characteristic of effective strategic leadership.

Freedman and Tregoe (2003: 137) explained that restructuring may seem easier than formulating strategy and many leaders may continuously restructure in the hope of achieving competitive advantage. In practice, repetitive and/or inappropriate restructuring and shifts in top management are often the symptoms of a poorly defined strategy (Freedman & Tregoe, 2003: 137). As a civil servant, the researcher notes that even though the CSC has stopped the appointment of polytechnic heads of departments, principals are left to use their discretion which is arbitrary and sometimes not based on merit.

3.6.4.3 Organisational policies and strategy implementation

An organisation's policies and procedures can either assist or block good strategy execution (Thompson, *et al.*, 2010: 359). Too much reliance on policy promotes excessive and stifling bureaucracy, erecting many obstacles that hinder innovation and effective strategy implementation. Thompson, *et al.* (2010: 361) advised leaders thus: "prescribe enough policy to give organisation members clear direction in implementation strategy and to place desirable boundaries on employees' action; then empower them to act within these boundaries however they think makes sense".

Thompson, *et al.* (2010: 361) argued that there is wisdom in a middle approach, where discretion is made somewhere in the middle of the boundary of a given policy. In Zimbabwean polytechnics, tuition fees are determined by the Minister of Higher and Tertiary Education, Science and Technology Development alone without any

boundaries set, giving no room for principals to exercise their discretion (Manpower Planning and Development Act, Government of Zimbabwe 1996: Sec. 28.02).However, certain policies are not that restrictive. For example, principals exercise their discretion in recruiting suitable staff members and then recommend them to Civil Service Commission for employment.

3.6.4.4 Organisational systems and strategy implementation

Thompson*, et al.* (2010: 371) explained that the "state-of-the-art support systems can be a basis for competitive advantage if they give an organisation capabilities that rivals cannot match." These organisational support systems are also inherent in polytechnics as they facilitate easy implementation of curriculum. Traditional support systems in polytechnics include an administration department that procures teaching materials and provides transport depending on the size of the institution.

A well-functioning information technology (IT) system installed in every lecturer's office with current versions of software such as Microsoft Office Word, Access, Excel, SPSS, and others, would make life easy for lecturers. Most offices at Harare Polytechnic have no Internet connectivity, let alone simple equipment such as desktops or laptops. Some colleges are slowly introducing e-marking software so that marking students' assignments and giving them feedback can be easier.

A company with a differentiation strategy based on superior quality might add capability in introducing training personnel in quality techniques, tracking products at each production stage and ensuring that all goods produced meet quality standards (Thompson*, et al.*, 2010: 371). By implication, the researcher argues that polytechnics should also ensure that their personnel are well trained to produce graduates that meet the required standard of skills, including international standards.

3.6.4.5 Best practices and strategy implementation

Thompson*, et al.* (2010: 361) defined a best practice as:

> A technique for performing an activity or business process that at least one
> organisation has demonstrated works particularly well. To qualify as a

legitimate best practice, the technique must have a proven record in significantly lowering costs, improving quality or performance, shortening time requirements, enhancing safety, or delivering some other highly positive operating outcome.

Lectures delivered by unqualified lecturers do not in themselves bring quality of instruction. Most polytechnic lecturers are not qualified to teach as they lack training in education and are therefore not competent in instructional delivery. This is despite CSC professionalisation policy that encourages civil servants to obtain relevant qualifications in their departments within three years of appointment (CSC, 2004: 2). The researcher has observed that some lecturers possessing a highest qualification of a National Certificates in Engineering trades for example have been teaching National Certificate students, a move that compromises learning standards.

This policy was promulgated because of a shortage of skilled personnel to teach in polytechnics. Factors that do not encourage lecturers to further their education are three-fold. First, lecturers are asked to pay fees when they feel this should be a staff development exercise that should be done for free or with part payment. Second, the salary differential between those with a teaching qualification and those without it is too small, and it does not motivate lecturers to attain a teaching qualification. Third, no action is taken to enforce the professionalisation policy.

Moreover, the CSC recruitment policy states that anyone with a minimum of a diploma or journeyman certificate in the area he or she wants to teach can be a lecturer (Civil Service Commission, 2004: 1). Nevertheless, the researcher critically observes that principals recruit technicians and artisans as lecturers, although some of them do not hold the necessary diplomas. However, each polytechnic has an education department that trains lecturers in andragogical skills, where Further Education Trainers Certificate and Diplomas are obtained. Unfortunately, this creates a situation where classes are under-enrolled as the management does not enforce the CSC professionalisation policy.

For effective best practices to be achieved there should be a continuous process of benchmarking. Benchmarking is the process of identifying, studying and

implementing outstanding practices (Thompson & Strickland, 2010: 362). As an insider-researcher, I have noted that Zimbabwean polytechnics fail to benchmark the quality of lecturers they recruit against lecturers of institutions such as universities, universities of technology or polytechnics in other Southern African countries. This lack of benchmarking reduces competitiveness and lowers the quality of Zimbabwean polytechnic curriculum. Lack of professional support in their areas of expertise by management could also play a role.

3.6.4.5Rewards and incentives and strategy implementation

Reward system is the overall term that denotes different factors considered in performance evaluations and allocation of monetary and non-monetary rewards to these factors (Ehlers & Lazenby, 2004: 192). Thompson, Strickland and Gamble (2010: 373) posited that, "a properly designed reward structure is management's most powerful tool for mobilising organisational commitment to successful strategy execution". They further argued that, "to get employees' sustained, energetic commitment, management has to be resourceful in designing and using motivational incentives, that is, both monetary and non monetary" (Thompson*, et al.*, 2010: 373).

Rewards should also be linked to specific outcomes necessary to effectively implement the strategy, and must focus on rewarding managers and employees on all levels of the organisation for taking action and for achieving the desired results (Hrebiniak, 2005: 189). While this view sounds credible, it is still a nightmare in Zimbabwean polytechnics where salaries above the poverty datum line of US$511 (Newsday, 2014) are restricted by government.

Zimbabwe polytechnic lecturers earn an average of US$500 (ZAR5200), almost one fifth of their counterparts' salaries in the SADC region (The Sunday Mail, 2010). The government effected a paltry 26 percent salary rise for civil servants in 2014 and this moved the gross salary of principal lecturers from US$500 to US$630 (Langa, 2014). That explains why there is high migration or brain drain of lecturers and other professionals from Zimbabwe to other countries in the SADC region, especially to South Africa and Botswana, which pay much higher salaries. Pearce and Robinson (2005: 299) supported Hrebiniak (*op. cit.*) by arguing that compensation rewards action and results are important in motivating employees to achieve certain

outcomes. Masters of Education graduates are poorly rewarded, earning an average of $13 per day, which includes housing and transport allowances. No incentive is given as a retention allowance to curb the brain drain.

The researcher laments that even though polytechnics have introduced Bachelor of Technology (B.Tech) degrees, lecturers that teach undergraduate classes are only paid allowances by Zimbabwe Development Fund (ZIMDEF) for extra work. Salaries in themselves are not increased to match state university lecturers.

3.6.4.7 Resource allocation and strategy implementation

Strategic leaders must acquire, develop and effectively manage organisational resources in order for their organisations to be successful in the dynamic, uncertain and complex competitive environment (Hitt, *et al.*, 2007: 3). This is linked to the Resource-Based View (RBV) of an organisation which suggests that the success of the organisation largely depends on what strategic leaders do rather than what kind of environment there is (Barney & Hesterly, 2006: 76). Hitt, *et al.* (2007: 397) advanced the idea that the ability to manage the resource portfolio of an organisation is a critical strategic leadership action that plays an important role in the effective implementation of strategy. Acquisition of institutional resources is the function of principals and is closely related to effective actions of a strategic leader.

An organisation's ability to marshal the resources to support new strategic initiatives and steer them to the appropriate organisational units has a major impact on the strategy execution process (Thompson, Strickland & Gamble, 2010: 358). Poor physical conditions and shortcomings in the provision of resources, facilities and equipment in educational institutions have been found to be contributory factors in the lack of a culture of learning (Steyn, 2002: 230; Chisaka & Mavundutse, 2006: 165). Even though this principle of resource-based management seems very sound, Zimbabwean polytechnics' resource base is still heavily controlled by the Ministry of Higher and Tertiary Education, Science and Technology Development and also influenced by the Zimbabwean economy (Ministry of Higher and Tertiary Education, Science and Technology Development, 1999: 9). Any strategy to create more

resources has to be approved by the permanent secretary. There are other initiatives that may be against the law or may not be ethically sound.

"A change in strategy always calls for budget reallocations and resource shifting" (Thompson*, et al.*, 2010: 358). For example, for purposes of efficiency and cost containment, HEXCO has decentralised the marking of examination scripts and external assessment for polytechnics to the provinces or regions (HEXCO, 2006: 4).The funding requirements of a new strategy must drive how capital allocations are made, and the size of each unit's operating budget. Underfunding organisational units and activities pivotal to strategic success impedes execution and drive for operating excellence (Thompson*, et al.*, 2010: 358). One area where Zimbabwean polytechnics are found wanting is that of developing their human resource base in terms of funding staff development programmes. However, leave for the purpose of manpower development, for example, is not easy to get, let alone be approved by CSC. This impacts negatively on the competence of staff members who are not able to develop themselves from meagre salaries that are below the poverty datum line of US$511 (Newsday, 2014).

Resource optimisation of matching resources with projects is a difficult iterative process. This is because acquiring adequate and quality resources that match project requirements is not easy. The optimisation process combines the following two types of information to make the hard decisions about what is and is not going to get done:

- Resource needs and timing for prioritised projects.
- Resource capacity and availability over time (Morgan*, et al.*, 2007: 167).

The researcher notes that Zimbabwean polytechnic principals find optimising the matching of resources with projects very difficult because the construction of new buildings is done by another ministry, the Ministry of Public Construction, with its own budget allocations from the fiscus. This is problematic because principals do not have control over projects implemented by the Ministry of Public Construction. For example, Harare Polytechnic's main library took more than nine years to construct,

from 2003 to 2012, partly because the job was in the hands of the Ministry of Public Construction.

3.6.4.8 Barriers to effective implementation of strategy

Hughes and Beatty (2005: 14) argued that leaders fail to be strategic because they lack focus, employ loose tactics where polytechnics actually perform activities not aligned with the organisation's strategy, and focus on short-term success at the expense of long-term viability. Scrutinising some of the curriculum implementation strategies of polytechnics reveals the limitation of the strategies, portraying that they are mere routine activities. Morgan*, et al.*, (2007: 2) raised another contentious issue, that when strategy makers neglect the critical connections between words and deeds, and between ideas and action, they are almost guaranteed to fail. They further argued that when executives think of the people who will implement strategy as mere lines and boxes on an organisation chart, they inevitably fail to tap into the full power of the organisation. The barriers to effective strategy implementation are summed up in Figure 3.4 below.

Figure 3.4: Barriers to effective strategy implementation
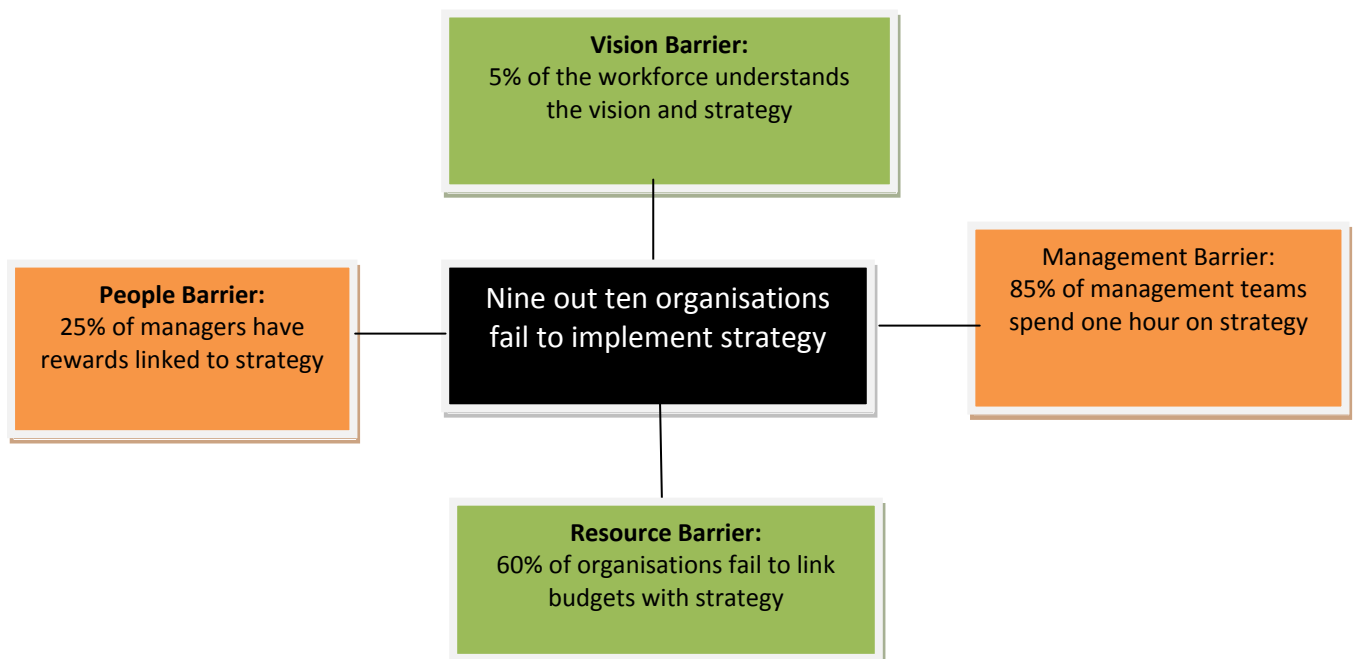
Source: Business Day (1999: 37)

From Figure 3.4 above, it can be noted that, if only 5% of the staff understand the vision, then it follows that 95% of them do not understand the vision. The implication is that 5% might be only the top management who were present during the crafting of the vision, while the rest of the employees were not informed about the vision. If 85% of the management teams spend one hour on strategy, then many useful hours appear to be spent on activities that have nothing to do with strategy or 15% of the management teams spend more time on strategy. The minimal amount of time spent on strategy alone by the majority of management teams implies that no meaningful implementation takes place, and that might explain why most strategies fail (Business Day, 1999: 37). Strategies may also fail because they are formulated with no resources to support them. Zimbabwe polytechnics, as viewed by the researcher, get their resources to fund their strategies from fees and fund-raising activities. Zimbabwean polytechnics are allowed to retain their fees but the funds are not usually sufficient to implement the strategic plans. Analysing views of the Business Day above for example, if 25% of the managers reward their employees who effectively implement strategy, then most strategies do not take off from the ground as up to 75% of the managers fail to motivate their competent workers who effectively implement strategy. Thompson, *et al.* (2010: 377) argued that a properly designed reward system positively influences members of an organisation to execute strategies competently towards the achievement of performance targets.

3.6.5 Strategic Competitiveness

An organisation's long-term competiveness depends on the leader's willingness to challenge continually, their leadership frames (Hamel & Prahalad, 1993: 77). Unfortunately, the same style of leadership style is experienced by staff members, year in and year out. No meaningful attempt is made to inspire subordinates to think 'outside the box' and compete favourably with other polytechnics.

The success of the strategic leader's quality of discretion is a function of his or her understanding of the external environment and the characteristics of the organisation on one hand and the leader's personality traits on the other. A principal who might be committed to the organisation (a characteristic of the strategic leader) and understands the number and type of competitors (a characteristic of the environment) but lacks adequate resources may not exercise effective discretion in

implementing curriculum strategy. Figure 3.5 below shows the list of factors that a strategic leader needs to take into consideration in exercising his discretion.

Figure 3.5: Factors affecting strategic leader's discretion

External environment
- Industry structure
- Rate of market growth
- Number and type of competitors
- Nature and degree of political/legal constraints
- Degree to which products can be differentiated

Characteristics of the organisation
- Size
- Age Culture
- Availability of resources
- Patterns of interactions among employees

Strategic leader's discretion

Characteristics of the Strategic Leader
- Tolerance for ambiguity
Commitment to the organisation and its desired strategic outcomes
- Interpersonal skills
- Aspiration level
- Degree of self confidence

Source: Finkelstein and Hambrick (1996: 34).

3.7 STRATEGIC LEADER'S KEY ACTIONS

Several identifiable actions characterise strategic leadership that positively contributes to effective use of an organisation's strategies (Dyck, Mauws, Starke & Mischke, 2002: 145). Freedman and Tregoe (2003: ix) argued that strategic leadership ensures effective implementation of important strategic management decisions.

Thus principals' strategic leadership competences are prerequisites for curriculum strategy implementation. Hitt, *et al.* (2007: 385) explained that there are five strategic leadership actions that play a role in the effective strategy implementation namely: determining the strategic direction, determining the organisation's resource portfolio, sustaining and effective organisational culture, emphasising ethical practices and establishing balanced organisational controls. Figure 3.6 below illustrates the five strategic leadership actions.

Figure 3.6: Key strategic leadership actions
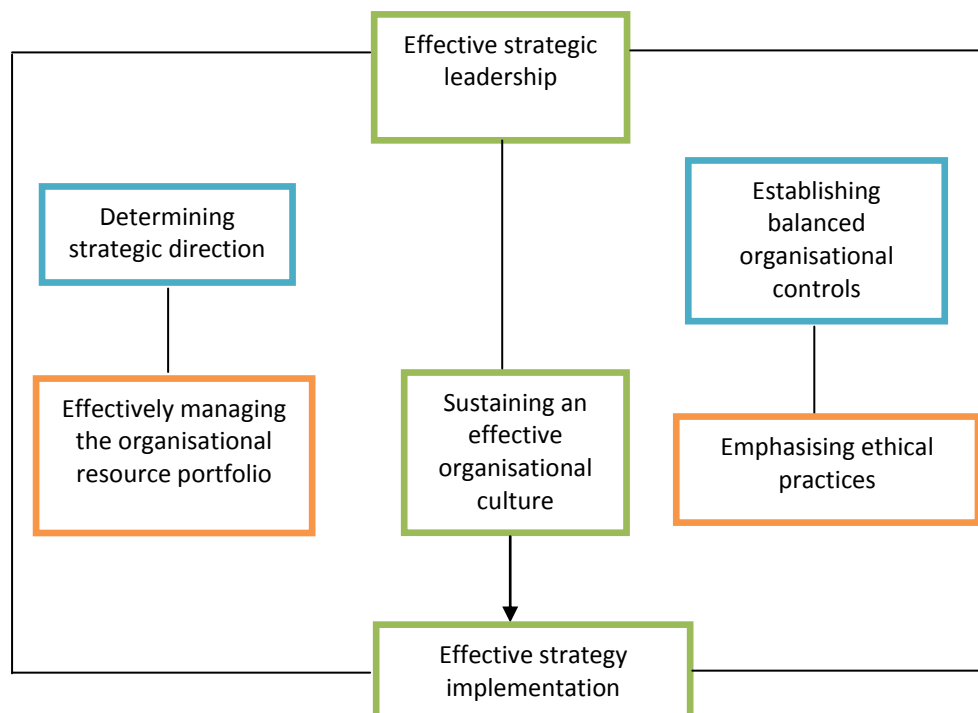
Source: Hitt, Ireland and Hoskisson (2007: 395)

3.7.1 Determining Strategic Direction

Determining the organisation's direction is the major responsibility of a strategic leader (Rotemberg & Saloner, 2000: 693; Hitt, *et al.*, 2007: 385). Bass (2007: 38) added that it is very important for the strategic leader to convey a vision of the organisation's future. A vision statement serves as a roadmap for determining the strategic direction of the organisation (David, 2001: 50; Kaplan & Norton, 2004: 32). Determining the strategic direction of an organisation is viewed as the first step in the strategic management process, one that precedes the implementation of strategy and strategic control (David, 2001: 5; Thompson & Strickland, 2003: 7; Pearce

&Robinson, 2005: 3). In terms of their job descriptions, principals are expected to chart the way forward by determining the vision of polytechnics.

The ideal long-term vision has two parts: a core ideology and an envisioned future. While a core ideology motivates employees through an organisation's heritage, the envisioned future encourages employees to stretch beyond their expectations of accomplishment and requires significant change and progress in order to be realised (Levin, 2000: 92). What is required of principals is to employ strategic leadership skills in order to foster in staff members, a new thinking of performing their duties beyond the ordinary levels.

Every polytechnic is unique or different from other polytechnics, even though it is governed by the same broad policies from the Ministry of Higher and Tertiary Education, Science and Technology Development. Each one will, therefore, as part of its strategy, have a vision and mission statement that reflects the strategic intent of the organisation. Both statements are developed by the leadership of the organisation and should be consistent, with the mission statement being derived from the vision statement. By way of example, Harare Polytechnic's vision statement is stated thus: "The leading centre of intellectual excellence and choice in training, research, consultancy and commercialisation of technology." Its mission statement is, "To produce highly competitive 'technopreneurial' graduates with research, consultancy and productive skills necessary to meet the dynamic needs of the nation." Harare Polytechnic's vision therefore contradicts its mission statement. The vision statement emphasises intellectual ability in the curriculum, while the mission statement emphasises technical and entrepreneurial skills. There is therefore no consistency between the statements. This is a pointer to the level of strategic leadership skills the Harare Polytechnic leadership have.

3.7.1.1 Ministry of Higher and Tertiary Education, Science and Technology Development strategic plan (2011 – 2015)

Principals craft strategic plans in line with Ministry of Higher and Tertiary Education. The core areas of the 2011 – 2015 Ministry strategic plan are outlined in Table 3.1 below:

Table 3.1: The core areas of Education Ministry's strategic plan 2011 – 2015

Vision	Guarantee Zimbabwe as a leader in the creation and use of new and existing knowledge, knowledge, skills, attitudes and resources for quality higher and tertiary education.
Mission	Provide an effective system for the production of highly competent human capital.
Overall Goal	To run an effective higher and tertiary education and training system that is critical for the development and production of human needed for the sustenance and growth of the economy.
Key result areas (KRA)	Human capital development Institutional development Research, planning and projects planning Quality assurance Curriculum developmental research

Source: Ministry of Higher & Tertiary Education, Science & Technology Development (2010: 8).

The above key result areas form the basis for all polytechnics to devise their specific strategic plans. For example, all polytechnics are at different levels of institutional development but are expected to incorporate the KRA into their strategic plans.

3.7.2 Effective Management of the Organisational Resource Portfolio

Strategic leaders must acquire, develop and effectively manage organisational resources in order for their organisations to be successful in the dynamic, uncertain and complex competitive environment (Hitt*, et al.*, 2007: 3). This is linked to the Resource-Based View (RBV) of an organisation which suggests that the success of the organisation largely depends on what strategic leaders do rather than what kind of environment there is (Barney & Hesterly, 2006: 76). Hitt*, et al.* (2007: 397) advanced the idea that the ability to manage the resource portfolio of an organisation is a critical strategic leadership action that plays an important role in the effective

implementation of strategy. Acquisition of institutional resources is the function of principals and is closely related to effective actions of a strategic leader.

An organisation's ability to marshal the resources to support new strategic initiatives and steer them to the appropriate organisational units has a major impact on the strategy execution process (Thompson, Strickland & Gamble, 2010: 358). Poor physical conditions and shortcomings in the provision of resources, facilities and equipment in educational institutions have been found to be contributory factors in the lack of a culture of learning (Steyn, 2002: 230; Chisaka & Mavundutse, 2006: 165). Even though this principle of resource-based management seems very sound, Zimbabwean polytechnics' resource base is still heavily controlled by the Ministry of Higher and Tertiary Education, Science and Technology Development and also influenced by the Zimbabwean economy. Any strategy to create more resources has to be approved by the permanent secretary. There are other initiatives that may be against the law or may not be ethically sound.

"A change in strategy always calls for budget reallocations and resource shifting" (Thompson, et al., 2010: 358). For example, for purposes of efficiency and cost containment, HEXCO has decentralised the marking of examination scripts and external assessment for polytechnics to the provinces or regions (HEXCO, 2006: 4).The funding requirements of a new strategy must drive how capital allocations are made, and the size of each unit's operating budget. Underfunding organisational units and activities pivotal to strategic success impedes execution and drive for operating excellence (Thompson, et al., 2010: 358). One area where Zimbabwean polytechnics are found wanting is that of developing their human resource base in terms of funding staff development programmes. However, leave for the purpose of manpower development, for example, is not easy to get, let alone be approved by CSC. This continuously impacts negatively on the competence of staff members who are not able to develop themselves from meagre salaries that are below the poverty datum line of US$511 (Newsday, 2014).

Resource optimisation of matching resources with projects is a difficult iterative process. This is because acquiring adequate and quality resources that match project requirements is not easy. The optimisation process combines the following

two types of information to make the hard decisions about what is and is not going to get done:

- Resource needs and timing for prioritised projects.
- Resource capacity and availability over time (Morgan*, et al.*, 2007: 167).

Zimbabwean polytechnic principals find optimising the matching of resources with projects very difficult because the construction of new buildings is done by another ministry, the Ministry of Public Construction, with its own budget allocations from the fiscus. This is problematic because principals do not have control over projects implemented by the Ministry of Public Construction. For example, Harare Polytechnic's main library took more than nine years to construct, from 2003 to 2012, partly because the job was in the hands of the Ministry of Public Construction.

Organisations have multiple resources that can be categorised into one of the following: financial capital, human capital, social capital and organisational capital, including organisational culture (Hitt & Ireland, 2002: 5). In other words, these multiple resources are intellectual capital, which include all non-tangible resources that (a) are attributed to an organisation, and (b) contribute to the delivery of the organisation's value proposition. Several authors define intangibles from an accounting perspective, though not limited to this perspective. Lev (2001: 5) defined intangibles as "a claim to future benefit that does not have a physical or financial (a stock or a band) embodiment." Moreover, Meritum (2002: 9) described intangibles as "non-monetary sources of probable future economic profits, lacking physical substance, controlled (or at least influenced) by a firm as a result of previous events and transactions (self-production, purchase or any other type of acquisition) and may or may not be sold separately from other corporate assets." Intellectual capital or an intangible is "knowledge that can be converted into profit" (Sullivan, 2000: 228). Kristandl and Bontis (2007: 1518-1519) defined intangibles from the resource-based perspective as:

> strategic firm resources that enable an organisation to create sustainable value, but are not available to a large number of firms (rarity). They lead to potential future benefits which cannot be taken by others (appropriability), and are not imitable by competitors, or substitutable using other resources. They are not tradable or transferable on factor markets (immobility) due to

corporate control. Because of their intangible nature, they are non-physical, non-financial, are not included in financial statements.

According to Meritum (2002: 10-11), intangibles comprise three major elements: human capital, structural capital and relational capital.

> Human capital is defined as the knowledge that employees take with them when they leave the firm. It includes the knowledge, skills, experiences and ability of people. Structural capital is defined as the knowledge that stays within the firm at the end of the working day. It comprises the organisational routines, procedures, systems, cultures, databases, etc. Relational capital is defined as all resources linked to the external relationships of the firm, with customers, suppliers or Research and Development partners. It comprises that part of human and structural capital involved with the companies' relations with stakeholders (investors, creditors, customers, suppliers, etc.) plus the perceptions that they hold about the company.

Similarly, Marr (2008: 5) concurred with Meritum (*ibid.*) that intangible resources can be split into three components: human capital, structural capital, and relational or social capital. The three components of intellectual capital are illustrated in Figure 3.7 below.

Figure 3.7: Key components of intellectual capital

| Individual Capabilities | Capacity to collaborate | Organisation's processes systems and procedures |
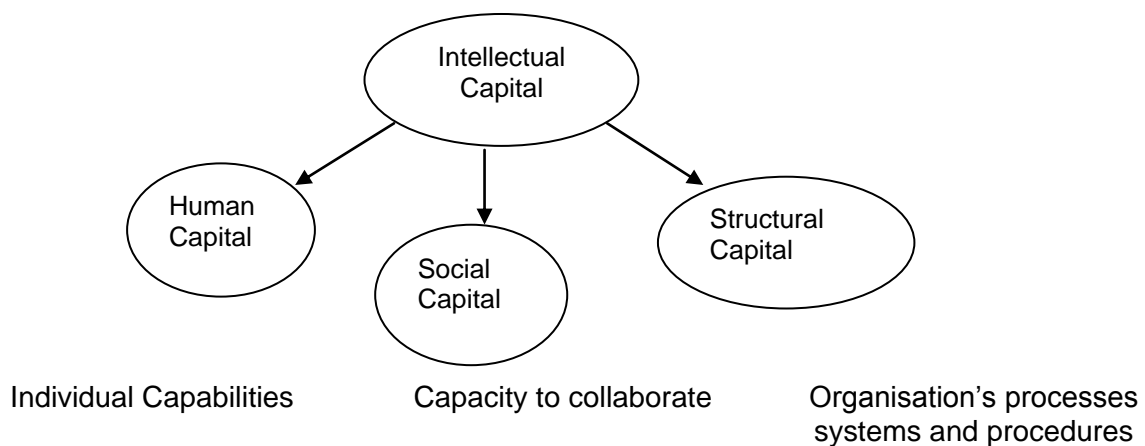
Source: Seemann, De Long, Stucky and Guthrie (2000: 3)

The ability to manage human capital may be the most critical of the strategic leader's skills (Hitt & Ireland, 2002: 5). Human capital is the knowledge, skills, and experiences possessed by individual employees. It comprises both explicit conceptual knowledge, such as how to create a budget, use an e-mail system, or

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execute a stock trade, as well as more tacit knowledge, such as how to negotiate a sale, write an advertisement, or interpret marketing data (Seemann, *et al.,* 2000: 3). The principal sub-components of an organisation's human capital are its workforce's skill sets, depth of expertise, and breadth of experience (Marr, 2008: 5)

The purpose of managing human capital is to ensure that the business has the right mix of talent at the right time to implement the firm's corporate strategy. Human capital raises questions about the company's current level of individual skills compared to the competition. Where will the talent for the organisation's five-year plan come from? How will management attract, retain, and develop these individuals? (Seemann*, et al.*, 2000: 3).

From the perspective of human capital, employees are viewed as a capital resource that requires investment (Lengnick-Hall & Wolff, 1999: 1115). This fact suggests that "as the dynamics of competition accelerate, people are perhaps the only truly sustainable source of competitive advantage" (Hitt, Bierman, Shimizu & Kochhar, 2001: 16). The increasing importance of human capital suggests a significant role for the organisation's human resource management activities. As a support activity, human resource management practices facilitate people's efforts to successfully select and especially to use the organisation's strategies (McWilliams, Van Fleet, & Wright, 2001: 10).

Structural capital includes the explicit, rule-based knowledge embedded in the organisation's work processes and systems, or encoded in written policies, training documentation, or shared data bases of "best practices". Structural capital includes policies, operating processes and procedures, the organisational structure with its leadership and management style, information flows and databases, organisational culture, and incentive schemes. It can also include legally protected intangible resources such as intellectual property recognised by patents and copyrights (Marr, 2008: 6).

In this study, structural capital includes systems, policies and regulations put in place by the Zimbabwean Civil Service Commission to govern public institutions such as polytechnics. These policies encompass appointment, promotion, demotion,

suspension and dismissal procedures among others. Communication channels from the principal to staff members, and vice versa, are also part of the structural capital.

Social capital is reflected in the ability of groups to collaborate and work together and is, basically, a function of trust. Effective networks of relationships characterised by high levels of trust are a valuable and often overlooked resource in the creation and use of knowledge (Seemann, *et al.*, 2000: 3). Social capital is critical for three reasons:

- It lowers transaction costs. Efficiency of action is increased by Intellectual capital – within and across teams, as well as across hierarchical and organisational boundaries – and, therefore, lowers transaction costs. Trust is paramount in effecting the sharing and use of new knowledge. In this regard, leadership as one of the factors that is so important that it cannot be over-shadowed in the successful management of intellectual capital. This is because senior executives should initiate trust and serve as role models.

- Higher quality knowledge is produced. People are more likely to seriously debate, brainstorm and sharpen ideas when they put trust in each other than when they have doubts about each other.

- It is a source of competitive advantage that cannot be imitated. Social capital is the way people collaborate and work together, negotiate meaning, and come up with the many varied decisions and transactions they make together every day. This can be highly contextualised to specific groups performing the work. It is extremely difficult to replicate high levels of trust and collaboration. This is reflected by the increasing tendency of competitors to make an attempt to hire away not just individuals but whole teams, in areas such as investment management. This culminates in the acquisition of both human and social capital at the same time (Seemann, *et al.*, 2000: 3).

Social capital involves relationships inside and outside the organisation that helps it to accomplish tasks and create value for customers and shareholders (Adler & Kwon, 2002: 20). Internal social capital is concerned with the relationship between strategic leaders and their followers as well as co-operation between functional units and employees. In polytechnics, this is the relationships between principals and staff

members as well as how they coordinate the departments. This relationship is fundamental in providing the necessary oil for lubricating the machine for effective curriculum implementation.

External social capital refers to the relationships between strategic leaders and other organisations and external stakeholders in order to gain access to the limited resources that the organisation needs to compete effectively (Hitt & Ireland, 2002: 5). One strategy that principals utilise is public private partnerships (PPPs) with private companies as part of its strategic alliances in order to gain access to limited resources and skills. An example in this case is that Harare Polytechnic engaged the services of a local engineering company, Platinum Engineering, to produce scotch carts, disc harrows, and tractor-drawn ploughs in large numbers. Harare Polytechnic provided labour in the form of competent apprentices and workshops with required machinery while Platinum Engineering provided materials. Social capital is a critical asset for an organisation. Inside the organisation, employees and units must cooperate to get the work done. These relationships must be effectively managed to ensure that the partner trusts the organisation and is willing to share the desired resources (Ireland, Hitt & Vaidyanath, 2002: 425).

In fact, social capital necessitates the partial success of different types of organisations. Entrepreneurial organisations should form strategic partnerships in order to have access to all types of resources, for example, unique skills that the entrepreneurial organisation can fail to afford and maintain in-house (Florin, Lubatkin & Schulze, 2003: 379).

Strategic leaders must acquire, develop and effectively manage organisational resources in order for their organisations to be successful in the dynamic, uncertain and complex competitive environment (Hitt, *et al.*, 2007: 3). This is linked to the Resource-Based View (RBV) of an organisation which suggests that the success of the organisation largely depends on what strategic leaders do rather than what kind of environment there is (Barney & Hesterly, 2006: 76; Nyambayo, 2008: 39). Hitt, *et al.* (2007:397) advanced the idea that the ability to manage the resource portfolio of an organisation is a critical strategic leadership action that plays an important role in the effective implementation of polytechnic curriculum strategy. Acquisition of

institutional resources is the function of principals and is closely related to effective actions of a strategic leader.

There are three basic types of resources that can create a basis for distinctive competitive advantage in organisations namely, tangible assets, intangible assets and organisational capabilities (Grant, 2002: 145).

- Tangible assets: The physical and financial means used by an organisation to deliver value to its customers, which includes production facilities, raw materials, financial resources, property and electronic equipment. These assets are included in the financial statements of the organisation, particularly in the balance sheet (Pearce & Robinson, 2005: 151).
- Intangible assets: Less visible tangible assets and cannot be touched. These assets are largely invisible in financial statements. In this way, competitors find it very difficult to imitate them which make it a more lasting basis for competitive advantage. Examples of intangible assets include brand names, reputation, organisational morale, technical knowledge, patents and trademarks.
- Organisational capabilities: Grant (2002: 145) defined organisational capabilities as: "...an organisation's capacity for undertaking a particular productive activity."

Some of the polytechnic capabilities include competent curriculum reviews, interpretation of syllabi and delivery of instruction. Figure 3.8 below illustrates the link between strategy and resources.

Figure 3.8: Link between resources, capabilities, competitive advantage
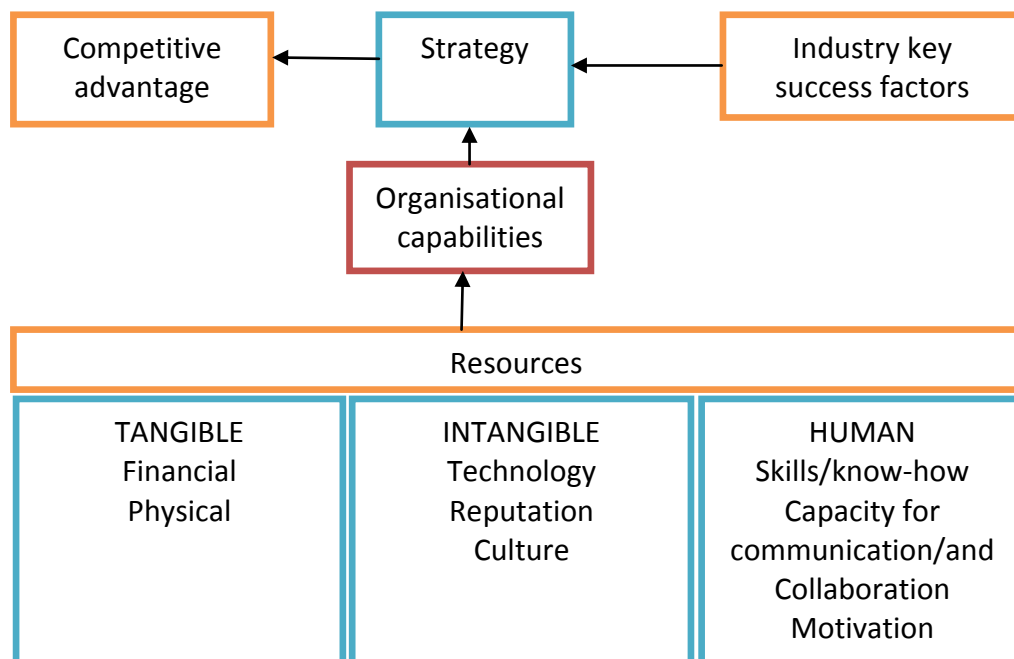
Source: Grant (2002: 139)

According to Barney and Hersterly (2006: 76-77), an organisation's internal resources can be classified into four broad categories:

- Financial resources: the financial capital that organisations use to formulate and implement strategies, which includes cash from investors, equity holders, bond holders and financial institutions, as well as retained earnings;

- Physical resources: the plant and equipment, location, and access to raw materials required by an organisation;

- Human resources: the training, experience, judgement, intelligence, relationships, and insight of managers and employees in the organisation; and

- Organisational resources: the attributes of individuals in the organisation, which includes the organisation's planning, structure, controlling and coordination systems, culture, reputation, and informal relationships among groups in the organisation.

Barney and Hersterly (2006: 76) distinguished between resources and capabilities as follows:

- Resources: "...the tangible and intangible assets that an organisation controls, which it can use to conceive and implement strategies."
- Capabilities: "...tangible and intangible assets that enable an organisation to take full advantage of other resources it controls."

Polytechnics' tangible and intangible assets include skills and talents to strategically lead staff members, state-of-the-art machinery, specialised classrooms, laboratories and adequate furniture. However, many of these assets are not always available.

3.7.3 Sustaining an Effective Organisational Culture

Organisational culture encompasses the prevailing way of organising work, and the type of people it attracts (Morgan, Levitt & Malek, 2007: 100). Sustaining an effective organisational culture is viewed as one of the several identifiable strategic leadership actions that positively contribute to the effective implementation of strategy (Dyck, *et al.*, 2002: 143; Hitt, *et al.*, 2007: 385; Pearce & Robinson, 2005: 342; Thompson & Strickland, 2003: 422).

3.7.3.1 Definition of culture

Pearce and Robinson (2005: 341) defined organisational culture as a set of important assumptions (often unstated) that members share in common. Hitt, *et al.* (2007: 384) defined it as consisting of a set of complex ideologies, symbols, and core values that are shared throughout the organisation and influences the way business is conducted. It is the role of a strategic leader (principal) to facilitate a culture that does not inhibit innovativeness and creativity.

Schein (2004: 17) also defined culture as:

> A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems.

The core of Schein's definition is that the basic assumptions do not come spontaneously, but they are acquired informally. It is assumed that after acquiring this knowledge, the group members are better prepared to deal with external problems. Many Zimbabwean companies that failed to adapt to the hyperinflationary environment fuelled by political instability and sanctions imposed by some western countries between 2005 and 2009, collapsed (The Herald, 30 April, 2011). Pearce and Robinson (2005: 345) viewed organisational culture as a set of important often unstated assumptions that a group shares in common. Hitt, Ireland and Hoskisson (2007: 390) defined organisational culture as a set of complex ideologies, symbols and core values that are shared throughout the firm and influences the way business is done.

Culture determines how an organisation sets its priorities, the kinds of questions it asks, and the style of leadership it adopts. It encompasses the prevailing way of organising work, and the type of people it attracts (Morgan, Levitt & Malek, 2007: 100). In this context, culture also embraces the extent to which curriculum strategy is implemented or not implemented in polytechnics. The level of skill required in implementing this type of strategy should develop into a certain culture of competency.

The above definitions are similar in that organisational culture has some assumptions that are shared but are covertly acquired by all members. However, Hitt, *et al.* (2007: 390) add a dimension of complex ideologies that is again shared by all members. Kaplan and Norton (2004: 281) viewed culture as the awareness and internalisation of the vision, mission, and core values required to effectively implement strategy. This strategic view of culture is quite relevant as it facilitates the implementation of strategy. However, Freedman and Tregoe (2003: 151) argued that "it [culture] is an unmistakably positive force when it is in alignment with the strategy and organisation's people management. When misaligned, however, it can be disruptive and a serious barrier to implementation." In addition, inappropriate organisational cultures that do not drive strategy implementation efforts must be changed (Hrebiniak, 2005: 57).

3.7.3.2 Types of organisational culture

This section describes different types of culture and gives an explanation of how each one is related to polytechnic education. A clear contribution of organisational culture to polytechnic curriculum strategy implementation is highlighted.

3.7.3.2.1 Schein's model of organisational culture

In expounding the organisational culture model, Schein (2004: 20) identifies the following three components as shown in Figure 3.9 below:

Figure 3.9: Components of organisational culture
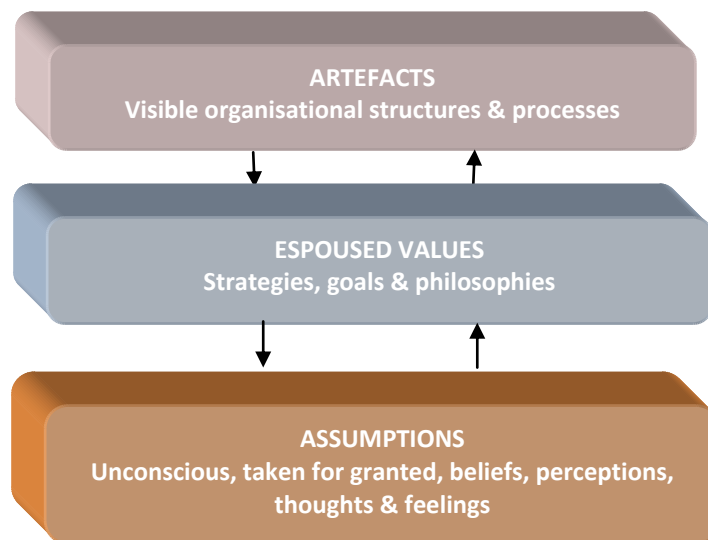
Source: Schein (2004: 20)

3.7.3.2.1.2 Artefacts

These are visible elements in a culture:

- They are normally recognised by people who are not part of the culture or system.
- Examples of artefacts are dress codes, furniture, art, work climate, work processes and organisational structures.

3.7.3.2.1.3 Espoused values

- These are normally represented by the philosophies, strategies and goals sought and realised by the leaders.
- These values should be supported by some general assumptions about how a company should be run, or how employees should be managed, for instance.
- They should be in tandem with the assumptions otherwise this might signal trouble for leaders.

3.7.3.2.1.4 Assumptions

The assumptions reflect the shared values within a specific culture.

- Schein (2004: 21) argued that they are often ill-defined, and will often times not be especially visible to the members of the culture.
- Assumptions and espoused values are possibly not correlated and the espoused values may not be rooted in the actual values of culture.
- These may cause problems where the difference between espoused and actual values may create frustrations, lack of morale and inefficiency.
- Core assumptions can, for instance, be assumptions regarding human nature and human relations.

These components are described in the context of polytechnic curriculum strategy. Schein's model of organisational culture has useful aspects of artefacts, espoused values and assumptions that can be utilised by polytechnics in planning, developing, implementing and evaluating curriculum.

Polytechnic artefacts are portrayed in the form of the formal dress code, specific logos and mottos that depict their specific identities. The organisational structure is hierarchical with the principal and vice principal occupying the top offices in decision making. As espoused values should be represented by philosophies, strategies and goals of effective curriculum implementation, it is not clear whether this part of the polytechnic culture is well communicated to the rest of the staff members so that the whole institution shares the same understanding. Schein (2004:22) emphasised that

espoused values and the actual values should not be different so as to minimise frustrations and lack of morale.

3.7.3.2.2 Schneider's model of culture

Schneider (in Morgan*, et al.*, 2007: 99) derived another model of organisational culture which he calls the four Cs of culture: competence, collaboration, cultivation and control. This is shown in Figure 3.10 below.
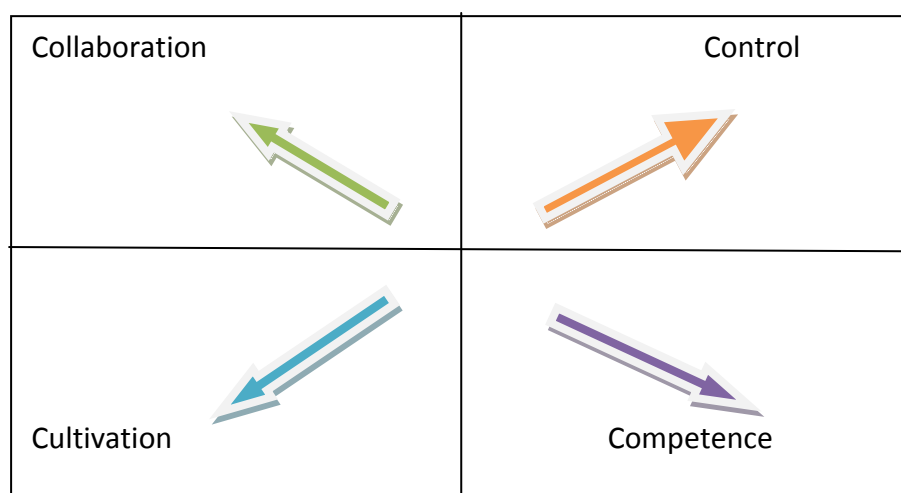
Figure 3.10: The 4Cs of culture

Source: Schneider (in Morgan*, et al.*, 2007: 99)

3.7.3.2.2.1 Competence culture

Organisations with a strong competence culture are typically headed by engineers or scientists (Schneider in Morgan*, et al.*, 2007: 99), for instance, construction, engineering and pharmaceutical companies. Such organisations value technical excellence above anything else. Zimbabwean polytechnics are no exception as the majority of them are headed by principals with engineering qualifications. However, having an engineering background does not mean that one will have the pedagogical and technical competence in delivering instruction. Having principals who lack management and andragogical skills compromises the quality of polytechnic curriculum instruction.

3.7.3.2.2.2 Collaboration culture

This type of culture places great value on understanding the unique needs of each customer (Schneider in Morgan*, et al.*, 2007: 99). Organisations with a strong collaboration culture prefer their products, offerings and features to be pulled by customer requirements, rather than pushed by the unique technical competence of their hardware and software engineers (Schneider in Morgan*, et al.*, 2007: 99). This type of culture is preferable as polytechnics are expected to offer curriculum that should be driven by industry needs rather than what they are able to teach their students.

3.7.3.2.2.3 Cultivation culture

Cultivation culture places a high value on recruiting, retraining, and nurturing highly creative employees to produce unique products. Advertising agencies and boutique consultants are archetypes of cultivation cultures. Such a culture should emanate from polytechnics studying diverse interests and preferences of society and strive to develop programmes that provide skills needed by their customers (either students or employers). In most cases, routine skills are the order of the day. Polytechnic curricula are normally reviewed once every five years indicating that they lag behind in terms of addressing the evolving unique needs of customers (Nziramasanga, 1999: 422).

3.7.3.2.2.4 Control culture

This type of culture is suited to organisations in mature commodity businesses and mature service industries such as accounting or utilities where profit margins are small. Reliably producing standard outputs where costs are consistently low is the key to success (Schneider in Morgan*, et al.*, 2007: 99). The Ministry of Higher and Tertiary Education's Human Resources Circular Number 1 of 2011 (The Ministry of Higher and Tertiary Education, 2011: 1) permitted Zimbabwean polytechnics to run strategic business units (SBU) that are operated in departments where staff members and students share proceeds equitably. This running of SBUs in

polytechnics links very well with marrying theory with practice where students practise learnt skills.

Schneider (in Morgan, *et al.*, 2007: 99) explained that culture determines how an organisation sets its priorities, the kinds of questions it asks, and the style of leadership it adopts.

Schneider's model can be aligned to Moore's (2002: 20) four value disciplines of strategic identity as shown in Figure 3.11.

Figure 3.11: The 4cs of culture and 4 value disciplines
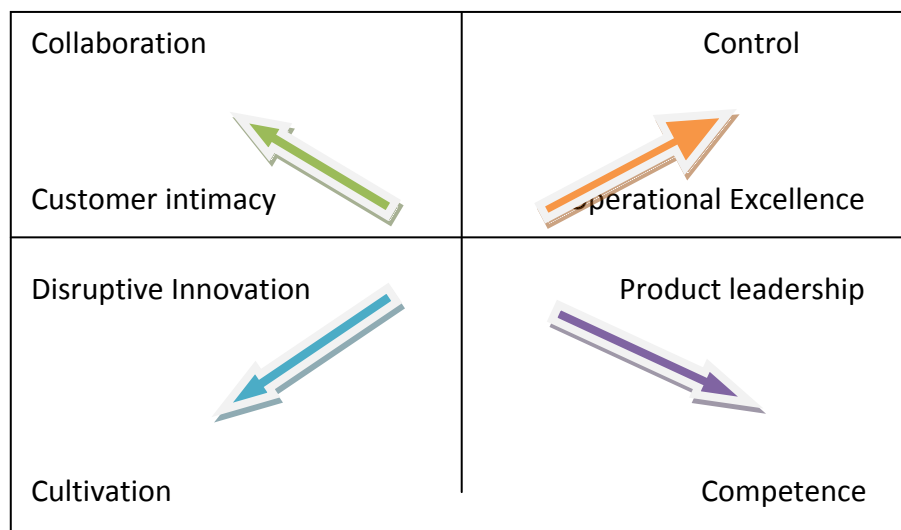
Source: Morgan, *et al.*, 2007: 99

Thus, an operational excellence (cost leadership) strategy fits well with a culture that emphasises control (especially over costs) and competence (with respect to streamlining and standardising processes).

In contrast, a differentiation strategy requires a culture that emphasises collaboration with customers to understand their needs and cultivation of employees who possess the unique skills to develop and deliver differentiated value for the organisation's products and services (Morgan, *et al.,* 2007:100). This fusion of Moore's value disciplines of strategic identity and Schneider's typology of culture may work best

where not only one type of culture dominates. It is critical to incorporate this knowledge of aligning strategy and culture in polytechnic curriculum implementation.

3.7.4 Emphasising Ethical Practices

The term ethics refers to, "...the moral principles that govern the actions of the individual or group." (Pearce & Robinson, 2005: 61). "Business ethics can be defined as the principles of conduct within organisations that guide decision making and behaviour" (David, 2001: 19). Both definitions view ethics as principles that guide or govern actions of employees in organisations.

A culture of ethics needs to permeate the entire organisation (David, 2001: 21). One individual who performs his/her duties unethically spoils the good reputation of all other ethical members. A polytechnic lecturer who leaks an examination paper to students for instance, weakens the confidence of the prospective employers in the graduates produced. The organisational leaders that act ethically encourage and enable their employees to act likewise in the implementation of strategy (Hitt, *et al.*, 2007: 393). Strategic leaders are responsible for developing, communicating, reinforcing and emphasising ethical practices of the organisation (David, 2001: 19; Ireland & Hitt, 1999: 57).

Strategic leaders should never assume that the organisation conducts its business in an ethical manner or that all employees at all levels are able to handle difficult ethical issues (Thompson & Strickland, 2003: 320). Thus it is the prerogative of strategic leaders to be unequivocally committed to ethical issues. Polytechnics operate in environments that train students to be well prepared to work in industries that uphold ethical practices in manufacturing products, and as such, good moral standards should be enforced.

3.7.5 Establishing Balanced Organisational Controls

Establishing balanced controls in the implementation of strategy is best achieved when strategic leaders are competent in this regard (Bossidy & Charan, 2002: 127; Hrebiniak, 2005: 222). Strategic controls entail continuous monitoring, reviewing and updating of the strategy in order to ensure the continuing efficacy of strategy

implementation efforts (Freedman & Tregoe, 2003: 23). Strategic controls should be distinguished from traditional management controls. In traditional management controls, the major focus is on short-term and corrective routine actions when there has been a deviation from the planned action (Ehlers & Lazenby, 2004: 232). The role played by strategic controls in strategy implementation is to evaluate the selected strategy to determine whether the results produced by the strategy are as they were intended. This can be done by setting performance standards, by following up on actual performance, and by using deviations to inform corrective actions (Ehlers & Lazenby, 2004: 232; Freedman & Tregoe, 2003: 178).

This implies that polytechnic curriculum planning, implementation and evaluation should be continuously reviewed to make sure that dynamic industrial standards are kept (Nziramasanga, 1999: 422). The balanced scorecard allows strategic leaders to develop a balanced set of controls that focus on finance, customers, internal processes, learning and growth (Kaplan & Norton 2001: 41).

3.8 CURRICULUM LEADERSHIP

The term curriculum has been defined (cf. 2.5.1) prescriptively (cf. Table 2.1) and descriptively (cf. Table 2.2). This section discusses curriculum leadership in the context of PCS. According to Leithwood (1992: 10), transformational leadership helps teachers to manipulate instructional behaviour and improve curriculum implementation – something that is related to leadership in curriculum.

Henderson and Hawthorne's (2000: 1) description of transformative curriculum leadership best encapsulates the main elements of leadership that curriculum implementation improvements can reveal. They suggest that transformative curriculum leadership has a core commitment to developing and enacting educational programmes and instructional interactions that are student-centred; conveys the idea of continuous growth through inquiry; and is grounded in self and social examination (Jefferies, 2000: 132). Transformative curriculum leaders "...work to include multiple perspectives, … encourage creative problem solving, and ...nurture critical thinking" (Henderson & Hawthorne, 2000, p.vii). Additionally, Fidler (1997: 30) equated curriculum leadership with instructional leadership which implies

"...that the head-teacher has an impact on the professional work of the school, including the teaching and learning which goes on in the classrooms".

Fidler (1997: *ibid.*) presented two points of view from which instructional leadership can be considered, one which takes a functional approach and one which takes a process approach. The functional approach involves leaders in defining the school mission, managing curriculum and instruction, supervising teaching, monitoring student progress and promoting an instructional climate. The process approach looks at ways in which this might be accomplished. Fidler (1997: 32) summarised the components of this approach using Firestone and Wilson's (1985: 11) bureaucratic, interpersonal and cultural linkages. It is the process approach, however, that Fidler considered important as he suggested leadership comes from the *way* the tasks in the functional approach are achieved rather than achievement of the individual tasks themselves.

If the purpose of schooling is to "…adequately prepare students for life in a world that is becoming increasingly complex" (Sparks & Hirsh, 1997: 96), then principals, teachers and other education professionals must constantly strive to provide the most relevant and up-to-date programmes they can. Sergiovanni (1996: 184) suggested that curriculum leadership must be viewed as one important part of the web of moral obligations that administrators, teachers, parents, and even students must accept. One part of this obligation is to share in the responsibility for exercising leadership. The other part of this obligation is to share in the responsibility for ensuring that leadership, whatever its source is successful. In this redefinition, teachers continue to be responsible for providing leadership in classrooms. Similarly, administrators, parents, and teachers must accept responsibility together for the provision and the success of leadership.

In order for this to happen, there must be on-going curriculum development, and principals and teachers must continue to develop their own personal professional knowledge, skills and understandings. One way to promote this on-going professional development might be through the use of curriculum leaders (Jefferies, 2000: 134).

Sparks and Hirsh (1997: 97) identified superintendents, curriculum supervisors, principals and teachers as having a leadership role to fill. In Zimbabwe, Curriculum Research and Development Unit (CRADU) is responsible for planning and developing polytechnic curriculum in conjunction with National Manpower Advisory Council (NAMACO) (cf. 2.4.2.2.4). Within an educational institution context, teachers or lecturers also play an important curriculum leadership role as this is one opportunity that teachers have to develop their leadership. According to Fidler (1997: 35), "although leadership from senior figures is important, other positions should be encouraged to provide leadership for particular tasks and sections of the school".

Southworth (2009: 93) identified instructional leadership as learning-centred leadership. He stated that school leadership is (and must be) primarily about teaching and learning and asserted that leadership becomes "more potent when it focuses on developing students' learning and strengthening teaching". Bush (2003:15-16) defined instructional leadership as "focusing influence in the direction of learning by learners as a result of teachers' professional organisation of learned material".

The principal as an instructional leader has been the subject of much research (Firestone & Wilson, 1985: 12; Hallinger & Murphy, 1987: 59). Principals can influence the quality of instruction by working through bureaucratic, interpersonal and cultural linkages. Bureaucratic linkages are the formal arrangements of the school which includes the rules, plans, supervision and administration which allow the school to operate (Firestone & Wilson, 1985: 12). Interpersonal linkages are those which involve one-to-one interactions that directly influence teachers' classroom practice. Cultural linkages refer to the principal's ability to affect how teachers think about their job and their commitment to it. It is this role that Firestone and Wilson (1985: 13) argued that it "...works directly on people's consciousness to influence how they think about what they do".

The ministerial and pedagogic roles described by Sergiovanni (1996: 185) have many similarities to these bureaucratic and cultural linkage roles. Sergiovanni's ministerial roles include things such as purposing, maintaining harmony, institutionalising values, motivating, managing, explaining, enabling, modeling and

supervising. The pedagogic role is one of ensuring that the interests of children are served well (Sergiovanni, 1996: *ibid*). Fidler (1997: 34) suggested that although the principal plays an important role in curriculum leadership, it was other factors, such as the school culture, that had a more direct influence, "Thus although the principal had some influence directly on students and teachers, curriculum leadership was mainly achieved by a more indirect process of working with and through Heads of Departments and influencing the school's culture".

The principal also provides curriculum leadership indirectly through for example: the establishment and maintenance of culture through the development of a vision and mission statement and shared goals (Bush, 1995: 48; Hall & Ramsay, 1994: 200; Leithwood, 1992a: 9); the development of collegial relationships by attending to individual and group needs (Hall & Ramsay, 1994: 200; Leithwood, 1992a: 10); and the development of collaborative learning environments that promote open and clear lines of communication (Bush, 1995: 49; Hall & Ramsay, 1994: 201; Sergiovanni, 1996: 186). School leaders contribute to the effectiveness of their educational institutions by "...influencing teachers' adoption and use of innovative classroom practices... [and] highly effective school leaders demonstrate high levels of commitment to instructional goals" (Chapman, 1993: 210). They do this, among other ways, by articulating an overall vision for the school, setting high professional standards and using participatory decision-making selectively but frequently (Chapman, 1993: *ibid.*) and by also fully involving teachers in the process (McEvoy, 1987: 75).

It is not only those in high leadership positions that provide curriculum leadership; teachers or lecturers do too, for their colleagues and their students. For instance, Wiggins (1994: 19) posited teachers should become instructional leaders to "...expand their own knowledge base and…come to a better understanding of their own conceptualisation of teaching." and that this leadership should not always come from a source outside of the teacher. Accordign to McGee (1997: 13), the role of teachers in curriculum leadership is crucial to its success. Supporting and leading colleagues in a specific curriculum area is one way that some teachers can showcase their curriculum leadership butpolytechnics have not considered the idea

of staff developing each other in specific curriculum areas in deliberately planned days.

However, for teachers to be properly prepared to be curriculum leaders then professional development, which increases their knowledge and skill base so they may become more effective at meeting the needs of all students, is needed (Fullan, 1995: 233). Some of the ways Fullan (1995: *ibid*) proposes this can happen include teachers taking some responsibility for developing collaborative cultures and changing the norms and practices of the school; leading the way in being continuous learners; and being driven by the moral purpose of making a difference to the lives of all students "... Moral purpose...must be an integral part of the conceptualisation of teacher leadership" (Fullan, 1995: 234). While much of the debate here has been about teachers as individual curriculum leaders, curriculum teams can also provide leadership in curriculum development and implementation in schools (Hord & Poster, 1993: 67).

Although the role of polytechnic principals as curriculum leaders is not easily defined, they do have certain characteristics. Jefferies (2000: 137) posits that curriculum leaders have a sense of purpose and a clearly defined mission or direction – one that is set by the group consensus rather than the individual. They involve people as much as possible in the change process and promote continual monitoring and review of programmes and practices. In polytechnics, a group of Heads of Department, called a board of training,can assist principals to make curricula decisions no matter how ignorant they might be. They model this by continually reflecting on their own teaching and assessment practices and encouraging others to do the same (Jefferies, 2000: 138). The researcher has experience of attending polytechnic board of training meetings and has observed a dearth of curricula skills in most of the deliberations, resulting in the imposition of most curricula decisions.

Curriculum leaders also use effective interpersonal skills and establish climates that build consensus, empower others and promote open and clear communication patterns (Jefferies, 2000: 139). Principals motivate colleagues to attain goals and encourage discussion, collaboration, shared decision-making and problem solving and are also concerned with curriculum implementation. This is supported by

Jefferies (2000: 139) when he said that principals help teachers to better understand the philosophies and intent of curriculum documents, provide assistance in implementing curriculum and resource materials, and model appropriate behaviours and practices in curriculum delivery. As a part of this, curriculum leaders are also concerned with informing colleagues of professional opportunities and disseminating professional and curriculum material (Jefferies, 2000: 139). In most cases, this role is done very well by principals save for the shortage of instructional resources (cf. 6.2.1.2).

3.9 Supervision and evaluation

Burke and Krey (2005: 31) viewed supervision as instructional leadership that focuses on purposes, relates perspectives to behaviour, contributes to and supports organisational actions, provides for improvement and maintenance of the instructional programme and assesses goal attainment. Supervision entails direct monitoring of instruction and the collection of data that may be useful in setting targets for improvement. Daresh and Playko (in DiPaola & Hoy, 2008: 3) succinctly defined instructional leadership as "direct and indirect behaviours that significantly affect teacher instruction and, as a result, student learning." Importantly then, the principal should be sensitive to the needs of lecturers and students to achieve quality teaching and learning. The process of supervision calls for considerable personal contact between the lecturer and the instructional leader. An observation by the researcher in one of the polytechnics is that no supervisor engages in instructional supervision as most of them really do not know what to look for in this type of supervision. There are only 'rituals' of collecting schemes of work every term that no one comments on. The idea of lesson observation in such a scenario becomes myopic and far-fetched. In polytechnic curriculum implementation, instruction comes in various ways. One way is in workshops where practical work is carried out for students to gain insights into the rigours of the field of work. Workshop instruction should be monitored in terms of practical lesson plans, samples of work done and evaluation of problems encountered during workshop practice. Another way is to monitor, through direct class visits, a sample of delivery of instruction by Heads of Department and Lecturers in Charge. This is where performance reports are

generated that documentobservations in terms of pedagogical theories applied from introduction, through lesson development to evaluation stage.

Conferences and classroom observations play a central role in instructional supervision. To ensure effective teacher supervision and evaluation, Daresh and Playko (*ibid.*) suggested that that the instructional leader should involve all staff and people from the community in setting clear goals and objectives for instruction; work according to the belief that all teachers can teach and teach well, and hold conferences with individual teachers to renew their instructional plans. While the principal can delegate some supervisory activities to the vice principal or the HOD, the Ministry of Higher and Tertiary Education, Science and Technology Development stipulates that he or she is expected to continue assessing and examining reports on lecturers and suggesting innovations for the improvement of lecturer-student interaction.

Supervision by the principal forms an integral part of staff development. A comprehensive, supportive and differentiated system of supervision consists of cooperative clinical supervision, collegial coaching which is an individualised and mediated entry programme, self-directed development activities and collegial study groups. According to Glanz (2006b: 57), clinical supervision is premised on the notion that teaching could be improved by a prescribed, formal process of collaboration between the lecturer and the supervisor. It focuses on the improvement of instruction by means of systematic cycles of planning, classroom observation and analysis and feedback conference. As pointed out by Sullivan and Glanz (2005: 152), a supervisor of instruction must be a person who is seen by the lecturer as a reliable source of assistance.

For clinical supervision to succeed, Sullivan and Glanz (2005: 152) suggested that teachers must feel comfortable to share their teaching practices with their school head. They further argue that supervision must be separated from performance evaluation and designed to promote instructional dialogue between the supervisor and the supervisee in an open, collegial and trusting manner. Importantly too, the improvement of instruction must be viewed as a goal-oriented direction that combines the needs of the institution with the personal needs of lecturers. The

supervisor must identify problems from the supervisees' perspective and solicit information to clarify them to make their challenging task a bit easier.

The primary purpose of the evaluation of lecturers' performance by the instructional leader is accountability (Mazibuko, 2007: 84). Davidoff and Lazarus (2002: 84) maintained that evaluation is intended to inform future planning and development. By virtue of their position, principals are mandated to evaluate lecturers either for purposes of promotion or salary progression. McEwan (2003: 36) contended that effective instructional leaders take personal responsibility to ensure that trustworthy research and proven practices are talked about frequently and demonstrated in a proficient manner in their institutions. In this view, effective instructional leaders read a variety of publications, attend all kinds of workshops, go to national conferences, present staff development programmes to their lecturers, and are always searching for potential resources. Steyn (2003: 223) argued that, "if we want to talk about institutional quality and institutional improvement, we need to focus on people improvement". In order to facilitate quality teaching and learning in classrooms, Steyn (2003: 223) maintained that the instructional leader should establish instructional priorities, believe that all students can learn and achieve at high levels and support lecturers who implement new ideas.

Gupton (2003: 106) maintained that the principal's role in providing a support system in which teachers can grow and further develop the complex skills of teaching is one of a coordinator and an integrator of many people to provide the best supervision. The process of supervision calls for considerable personal contact between the teacher and the instructional leader in which clinical supervision and classroom observations play a central role.

Professional development can address teachers as whole persons, fostering their pedagogical, cognitive, emotional, social, and ethical development (Glickman, Gordon & Ross-Gordon, 2004: 476).

3.9.1 The results-based management process

The RBM process involves the following steps which relate to results-oriented planning:

1) Analysing the problems to be addressed and determining their causes and effects;
2) Identifying key stakeholders and beneficiaries, involving them in identifying objectives and in designing interventions that meet their needs;
3) Formulating expected results, in clear and measurable terms;
4) Identifying performance indicators for each expected result, specifying exactly what is to be measured along a scale or dimension;
5) Setting targets and benchmarks for each indicator, specifying the expected or planned levels of result to be achieved by specific dates;
6) Developing a strategy by providing the conceptual framework on how expected results shall be realised, identifying the main modalities of action reflective of constraints and opportunities and related implementation schedule;
7) Balancing expected results and the strategy foreseen with the resources available;
8) Managing and monitoring progress towards results with appropriate performance monitoring systems drawing on data of actual results achieved;
9) Reporting and self-evaluating, comparing actual results against the targets; and
10) Reporting on results achieved, the resources involved and eventual discrepancies between the "expected" and the "achieved" results (UNESCO, 2011: 6).

In the Zimbabwean polytechnics, the RBM process is top-down since in most cases, the objectives are imposed on lecturers without their involvement and they are deemed to have "agreed" with the procedure of managing their performance. The rating of performance at the end of every year is arbitrary as no strict standards are followed in comparing actual performance with desired outcomes. This renders the whole RBM process a lip service.

Madhekeni (2012: 5) argued that one of the challenges of implementing RBM is that of politics of administration which has proved to be an unshakable part and parcel of government departments. The suspicion, mistrust, and confidentiality-ridden government environment makes it difficult for objective, independent and timely reporting to be executed. Madhekeni (*ibid.*) further posited that the common trend in the Zimbabwean government is to prioritise political expedience above everything else. In this regard, one may argue that implementing RBM becomes a tall order as the objectivity of the whole process is compromised. The challenge of resource constraints make the implementation of RBM very difficult, especially in an environment where emphasis is on the results rather than on the activities (Munyaradzi, 2012: 7).

Given the challenges faced by the principals and lecturers in implementing RBM, the effective management of performance in this regard becomes far-fetched. If RBM as the main focal point in supervising lecturers in polytechnics has such loopholes that have been highlighted above, then the implementation of curriculum strategy is compromised.

3.10 THE BALANCED SCORECARD

The balanced scorecard is not only a performance measurement system, but also a strategic management system that enables strategic leaders to clarify their strategies (strategy formulation), translate them into action (strategy implementation) and provide meaningful feedback (strategic control) (Pearce & Robinson, 2005: 383). Controls act as providers of feedback to the whole implementation process so that strategic leaders are kept abreast of changes (Hrebiniak, 2005: 10; Pearce & Robinson, 2005: 366). In Zimbabwean polytechnic education, strategic control seems arbitrary and cosmetic. Very good mark sheets that capture coursework and examination marks are designed and well monitored up to data capturing level. This is just a summary of the last steps of the course. What is ignored is the quality of the process leading to item writing and compilation of the test items and marking. Impressive, well-typed mark sheets containing rudimentary marks are produced leading to a 'good' pass rate that is announced by the Permanent Secretary for Higher and Tertiary Education, Science and Technology Development.

The underlying premise of a balanced scorecard is that organisations jeopardise their future performance possibilities when financial controls are emphasised at the expense of strategic controls (Becker, Huselid & Ulrich, 2001: 21). Financial controls provide feedback about outcomes achieved from past performances (Kaplan & Norton, 2001: 99).

Thus, an overemphasis on financial controls could promote organisational behaviour that has a net effect of sacrificing the organisation's long-term value-creating potential for short-term performance gains (Kaplan & Norton, 2001: 99). An appropriate balance of strategic controls, rather than an overemphasis on either, allows organisations to effectively monitor their performance. Kaplan and Norton (2001: 75) explain that four perspectives are integrated to form the balanced scorecard framework:

- Financial perspective (concerned with growth, profitability, and risk from that shareholders' perspectives);
- Customer perspective (concerned with the amount of value customers perceive was created by organisation's products);
- Internal business processes (concerned with a focus on the priorities for various business processes that create customer satisfaction);
- Learning and growth (concerned with the organisation's effort to create a climate that supports change, innovation and growth).

Thus, using the balanced scorecard framework allows the organisation to understand how it looks to shareholders (financial perspective), how customers view it (customer perspective), the processes it must emphasise to successfully use its competitive advantage (internal perspective), and what it can do to improve its performance in order to grow (learning and growth perspective) (Kaplan & Norton, 1992: 76). Figure 3.12 illustrates the scorecard's four perspectives.

Figure 3.12: Strategic and financial controls in a balanced scorecard

Financial	• Cash flow. • Return on equity. • Return on assets.
Customer	• Assessment of ability to anticipate customer needs. • Effectiveness of customer service practices. • Percentage of repeat business. • Quality of communications with customers.
Internal Business Processes	• Asset utilisation improvements. • Improvement in employee morale. • Changes in turnover rates.
Learning and Growth	• Improvements in innovation ability. • Number of new products compared to competitors'. • Increases in employees' skills.

Source: Kaplan and Norton (1992: 76)

Generally, strategic controls tend to be emphasised when assessing performance in terms of the financial perspective. Organisations use different criteria to measure their standing relative to the scorecard's four perspectives. Strategic leaders are responsible for development of effective use of balanced organisational controls to ensure the effective implementation of strategy (Freedman & Tregoe, 2003: 178; Hrebiniak, 2005: 222; Mankins & Steele, 2005: 65).

The Balanced Scorecard is not only a performance measurement system, but also a strategic management system that enables strategic leaders to clarify their strategies (strategy formulation), translate them into action (strategy implementation) and provide meaningful feedback (strategic control) (Pearce & Robinson, 2005: 383). Controls act as providers of feedback to the whole implementation process and ensure that strategic leaders are able to monitor any deviations (Hrebiniak, 2005: 10; Pearce & Robinson, 2005: 366).

One serious drawback in public institutions, highlighted by Wart (in Lemay 2009: 3) is that leadership is viewed monolithically because of its top-down approach from

directors to principals. The top-down policies in the public sector tend to be prescriptive and inhibit creativity and innovation, and therefore inhibit the extent to which principals can be effective. Despite this gloomy picture, the current research seeks to assess the level of their effectiveness in curriculum strategy formulation and implementation.

Hughes and Beatty (2005: 14) argued that leaders fail to be strategic because they lack focus, employ loose tactics where departments and functional areas actually perform activities not aligned with the organisation's strategy, and focus on short-term success at the expense of long-term viability. Scrutiny of some of the curriculum implementation strategies of polytechnics reveals the limitations of the strategies, portraying that they are mere routine activities. Morgan, Levitt and Malek (2007: 2) highlighted another contentious issue, namely that when strategy makers neglect the critical connections between words and deeds – between ideas and action – they are almost guaranteed to fail. They further argue that when executives think of the people who will implement strategy as mere lines and boxes on an organisation chart, they inevitably fail to tap into the full power of the organisation.

Literature on the models of effective implementation of strategy in polytechnics is sparse. Much of this literature relates to business and private organisations. Freedman and Tregoe (2003: 12) made an attempt to derive an Enterprise Model, which consists of the government, the economy, society and community, and the parent corporation as the external factors that affect the quality of the strategy formulation process. Resources are technology, people and money. By using the Enterprise Model, leaders can ensure that strategy implementation becomes evident in the business processes of goal formulation and measurement, utilisation of human capabilities, establishing an appropriate organisational structure and culture, and management of its information/knowledge resources. This model may be applied to the Zimbabwean polytechnics though it lacks certain specific details like relevant statistics and bureaucratic nature of government policies.

Hughes and Beatty (2005: 20) used a framework or model called 'strategy as a learning process' to explain strategy-making and strategy-implementation processes. The framework has five stages: (1) assessing where we are (SWOT analysis of

industry and organisation), (2) understanding who we are and where we want to go (vision, mission and values), (3) learning how to get there (key strategic drivers – business and leadership strategies), (4) making the journey (implementation tactics that encompass current performance and future capability) and (5) checking our progress. The business and leadership strategies that drive the overall implementation processes (Stages 4 and 5) are missing in the Enterprise Model.

Both these models do not include the question of which metrics or standards can be used to assess the effectiveness of any implemented strategy, although the second model hints at this in Stage 5. The derivation of a model for effective strategy implementation in polytechnics would be one of the major contributions of this research. This envisaged model would incorporate the aspects of metrics into effective curriculum implementation.

3.11 FAILURE OF CHIEF AND SENIOR EXECUTIVES IN ORGANISATIONS

CEOs are flawed individuals who are operating in a complex world according to Bass (2007: 41). They are intensely driven to achieve and they operate in a market place that measures achievement almost wholly in the short term. They confront a world that moves faster than ever before, and really there is little about their unwieldy organisations that they easily control (Finkelstein, 2003: 86).

Regardless of the challenges, effective strategic leaders do exist. For example in Zimbabwe, in 2005, Harare Polytechnic launched a successful bio-diesel project that was later hijacked by politicians for campaigning purposes, but thereafter, the project failed to move forward. Econet Wireless Zimbabwe Limited, the owner of Steward Bank, a commercial bank in Zimbabwe, has successfully understood the Zimbabwean business environment and has since diversified into shopping malls and quality furniture shops. On 11 July 2012, TN Group of Companies (PVT) Ltd successfully listed on the Zimbabwean Stock Exchange. It is one of the fastest growing Zimbabwean companies ever formed since 2009.

Strategic leadership sets the directions, meaning, purposes, and goals of the organisation (Bass, 2007: 33). It is from this perspective that CEOs' strategic

leadership efforts can be evaluated in order to ascertain the extent to which the directions and purposes of the organisation are effective. Principals of polytechnics are no exception as they are taken to be the chief executives of their respective institutions. In this thesis, chief executive officers and principals of Zimbabwean polytechnics are taken to be synonymous. Bass (2007: 41) argued that many executives fail because their strategies focus on short-term results and are insensitive to the feelings of employees and customers. This is because principals continue to implement routine management functions that are repetitive, and fail to implement curriculum strategies such as acquiring state-of-the-art lathe machines and welding machines that can be used by mechanical engineering students. They run a tight, highly controlled organisation that is inflexible and maladaptive when faced with the need to change (Bass, 2007: 41). One observation is that some principals practise armchair administration which is merely reactive to organisational problems, as opposed to proactively seeking to implement strategies that they themselves have drafted.

Senior executives fail when their strategic visions involve too much of their personal interests and not enough of the interests of their organisations' constituents; when the vision blocks out important opportunities; when the vision distorts market realities; and when the vision fails to recognise a changed environment (Bass, 2007: 41). Senior executives fail when they create illogical structures and compensation plans (Bass, 2007: 42). Most polytechnics in Zimbabwe have the capacity to create performance-based strategies to motivate staff members. However, flimsy excuses are given where policy is blamed for not allowing that flexibility.

According to Hitt, Hoskisson and Harrison (1991: 12), strategies fail because of lack of attention to productivity, quality, innovation and need for a global strategy. Regrettably, true as most principals incompetently fail to improve poor quality services and products from lecturers and students. If the original strategy of producing quality brands of products with students is followed, then innovation is achieved. There seems to be lack of strict supervision in the implementation of strategic plans, and this usually results in the lowering of productivity levels.

Lack of understanding of the Pareto principle (80-20 rule) by strategic leaders normally gives rise to strategy implementation failure (Baloch & Inam, 2008: 101). This principle was named after an Italian economist, Vilfredo Pareto, who observed in 1906 that 80% of the land in Italy was owned by 20% of the population (Noubel, 2007: 24). Generally this principle is now applied in many areas for example, in sales, 80% of the business comes from 20% of the one's customer base and in productivity, 80% of the work comes from 20% of one's task list (Grosfed-Nir, Rozen & Kozlovksy, 2007: 2318). Logically, it follows, therefore, that in polytechnics 80% of skills students gain in any course comes from 20% of the staff members. The challenge to principals is to identify those industrious staff members and apply the principle of equity in compensation or reward them accordingly as a form of recognition.

Baloch and Inam (2008: 101) summed it up when they posited that a dearth of [strategic] leadership is the major contributory factor to the failure of most strategies in organisations. A compelling vision, bold leadership and decisive action are the prerequisites of success; however, their absence is almost always the key ingredient of failure of any business strategy (Baloch & Inam, 2008: 101).

3.12 CHAPTER SUMMARY

Although the field of leadership research has developed more slowly than many of us anticipated, it still yields useful information for managers both in understanding the dynamics of leadership role and enhancing its effectiveness within their organisations. Navigating through the various research findings and theories on leadership discussed so far, it is evident that there is no comprehensive theory which encompasses all the independent variables or sub-components that determine the effectiveness of the leadership.

CHAPTER 4

RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

This chapter is divided into eight sections. The first section defines important definitions in research methodology such as mixed methods research, quantitative research and qualitative research. The second section outlines research paradigms. The third section outlines the nature of mixed methods research. The fourth section details the population and sampling techniques of the study. The fifth section describes the step-by-step procedures of instrumentation and data collection techniques. The sixth section of the chapter describes data management and analysis procedures including factor analyses using the Statistical Package for the Social Sciences (SPSS). The seventh section outlines reliability and validity strategies adopted in this study. The final section explains the different ethical considerations employed in this study.

4.2 THEORETICAL FRAMEWORKS

4.2.1 Paradigms

Different paradigmatic approaches to research are associated with defining 'qualitative' and 'quantitative' research. This means that both qualitative and quantitative research have assumptions about the nature of knowledge (ontology) and the means of generating it (epistemology) (Buber, Gadner & Richards, 2004: 142). Guba and Lincoln (1988), for example, identified paradigm differences between post-positivist philosophical assumptions and naturalistic assumptions in terms of epistemology (how we know what we know), ontology (the nature of reality), axiology (the place of values in research), and methodology (the process of research) (Krauss, 2005: 758). A theoretical paradigm is thus the identification of the underlying basis that is used to construct a scientific investigation; or, "a loose collection of logically held together assumptions, concepts, and propositions that orientate thinking and research" (Bogdan & Biklan, 1982: 30). Likewise, a paradigm can be defined as the "basic belief system or world view that guides the investigation" (Guba & Lincoln, 1994: 105).

4.2.1.1 Epistemology

The term epistemology comes from the Greek word epistêmê, which means knowledge. It is the philosophy of knowledge or how we come to know (Trochim, 2000: 1). Epistemology is intimately related to ontology and methodology. Ontology involves the philosophy of reality, while epistemology addresses how we come to know that reality and methodology identifies the particular practices used to attain knowledge (Krauss, 2005: 758). Epistemology poses the following questions: What is the relationship between the knower and what is known? How do we know what we know? What counts as knowledge? (Krauss, 2005: 758). In this research, the researcher wanted to know what counts as knowledge in the management of effective polytechnic curriculum implementation.

4.2.1.2 Positivism

Positivism is based on the assumption that there are universal laws that govern social events, and uncovering these laws enables researchers to describe, predict, and control social phenomena (Wardlow, 1989: 4). In addition, the object of study is independent of researchers; knowledge is discovered and verified through direct observations of phenomena; and facts are established by taking apart a phenomenon to examine its component parts (Coll & Chapman, 2000: 3; Cousins, 2002: 196). A positivist aspect of this study was to collect facts about what roles principals actually perform in the implementation of polytechnic curriculum strategy.

Researchers employing positivistic research inherently hold the following primary assumptions as intrinsic characteristics of the positivistic mode of inquiry (Wardlow, 1989: 3):

- The physical world and social events are analogous in that researchers can study social phenomena as they do physical phenomena.
- Theory is universal and sets of principles and inferences can describe human behaviour and phenomena across individuals and settings.
- In examining social events, researchers adhere to subject-object dualism in that they are independent from their research subjects.

- There is a need to formalise knowledge using theories that are operationally distinct from each other.

- Hypotheses about principles of theories are tested by the quantification of observations and by the use of statistical analyses.

Scott and Morrison (2006: 170) argued that positivism consists of facts can be collected about the world; language allows us to represent those facts effectively; and it is possible to develop correct methods for understanding educational processes, relations and institutions. For instance, Auguste Comte (1798-1857) as a classical positivist argue that reality is real; it exists "out there" and is waiting to be discovered (Kim, 2003: 10). Human perception and intellect may be flawed, and reality may be difficult to pin down, but it does exist. In this study, facts about curriculum implementation were gathered as reality that could be proven and verified in polytechnic departments as opposed to perceptions about what participants feel about the implementation process.

Positivism has been defined by numerous researchers over the years. Kolakowski (1972), for example, stated that positivism embraces a four point doctrine: (1) the rule of phenomenalism, which asserts that there is only experience; all abstractions be they "matter" or "spirit" have to be rejected; (2) the rule of nominalism – which asserts that words, generalisations, abstractions, and so on, are linguistic phenomena and do not give new insight into the world; (3) the separation of facts from values; and (4) the unity of the scientific method.

4.2.1.3 Anti-positivism

Polytechnic curriculum strategy implementation is a social reality that only principals and their lecturers are affected by, and best explains what happens with students. This is why Doğan (2013: 249) argued that anti-positivism subscribes to the notion that social reality and the world are relative and it is impossible to arrive at conclusions and make inferences without being affected by this notion. It is in this regard that anti-positivists argue that inferences about a social reality cannot be made without having an internal perspective about that social reality (Doğan, 2013: 249). Positivism would subscribe to the view of removing the researcher from

principals' views to act as machine recording information with no feelings and opinions. In this regard, according to anti-positivism, science does not consist of accumulation of objective knowledge (Doğan, 2013: 249). Also, it could be suggested that anti-positivists reject the observer's point of view in analysing facts as a subject of science.

Anti-positivists strongly hold the view that the exclusion of the individual from reality is the cause of misrepresenting social reality (Doğan, 2013: 250). The idea that reality may create different connotations from individual to individual, and that analysis of reality with systematic norms is contrary to the nature of reality, reveals the epistemological perspective of positivists against anti-positivists. In a nutshell, the positivist and anti-positivist scientific approaches exhibit some differences on the epistemological continuum (Doğan, 2013: 250). Based on these differences, anti-positivists' key criticisms of positivism are mainly due to the fact that the positivist paradigm prevents obtaining a variety of knowledge and exclude facts that cannot be measured from the scope of science.

However, according to Hunt (1993: 79).subjectivists or post-positivists argue that researchers cannot distance themselves from: (1) what is being observed, (2) the subject matter of research, or (3) the methods of study; this means the researcher is value-laden with inherent biasedness reflected by their background, status, interests, beliefs, skills, values, and resources

In short, subjectivists argue that the involvement of the researcher should be actively encouraged and this explains why researchers such as phenomenologists attempt to minimise the distance between the researcher and that which is being researched (Hussey & Hussey, 1997: 49). Contrary to the objectivists' views, subjectivists focus on the meaning of social phenomena more than how they are measured. Their goal is to understand and to explain a problem in its contextual setting; they do not perceive that it is a question of causality but rather it is a question of the meaning individuals attach to a given situation (Easterby-Smith, Thorpe & Lowe, 1991: 28; Hughes & Sharrock, 1997: 40).

From the preceding discussion, it can be noted that objectivism has been increasingly criticised as an inappropriate approach to the study of social science phenomena. Critics of objectivism perceive that the explanatory success of objectivism in the natural sciences has not been repeated in the social sciences due to its significant flaws (Holden&Lynch, 2002: 11). Serious flaws may arise if researchers solely stick to positivism in observing social reality about polytechnic curriculum strategy implementation as lived experiences of principals about PCS are not objective knowledge that can be measured scientifically.

One can disagree that "positivist science provides us with the clearest possible ideal knowledge" (Cohen, Manion & Morrison, 2007: 11). Even if one falsifies a hypothesis instead of affirming it, one still assumes that this research is objective and reflects social reality (Mack, 2010: 7). No matter how stringently a scientist adheres to the scientific method, there is never an outcome that is objective. Although behavioural uniformities exist, they are not, "evidence [of an] underlying essential uniformity among entities, but [an] illusion – a social construction" (Gage, 1989: 5). The critical theorist emphasises the determinist view of science as the "ideal knowledge" which ignores the moral choices, values and judgments scientists make (Cohen, *et al.,* 2007: 18). In addition, one can find fault with the positivist ideology of parsimony (the idea that theories should be as simple and concise as possible). It is impossible for any theory in social science to be simple and precise because the world we live in and peoples' multiple perspectives and interpretations of events make theories complex and chaotic. So many variables affect different events and people's actions that it is impossible to determine an absolute truth. The above criticism led to the formation of the interpretivist or the constructivist paradigm (Mack, 2010: 7).

4.2.1.4 Naturalist or constructivist view

According to Neuman (2006: 87), the constructionist view is rooted in empathetic understanding, or *verstehen*, of the everyday lived experience of people in specific settings. The naturalist (constructivist) view, holds that knowledge is established through the meanings attached to the phenomena studied; researchers interact with the subjects of study to obtain data; inquiry changes both the researcher and subject; and knowledge is context-and time-dependent (Coll & Chapman, 2000: 4;

Cousins, 2002: 198). This research was interpretive as it sought to understand values, beliefs and meanings of social phenomena. In this case, the researcher obtained *verstehen* or a deep and sympathetic understanding of human cultural activities and experiences (Smith & Heshusius, 1986: 8), of polytechnic principals and lecturers in managing the effective implementation of curriculum strategy.

4.2.1.5 Realism

Realism, as a philosophical paradigm, has elements of both positivism and constructivism (Healy & Perry, 2000: 119). Positivism mainly concerns itself with practical and objective reality whereas realism is mainly concerned with varied views and perceptions abound a single reality (Healy & Perry, 2000: 119). Methods such as semi-structured in-depth interviews of polytechnic principals were acceptable and appropriate within the paradigm, as are statistical analyses, such as those derived from structural equation modelling (Perry, Alizadeh & Riege, 1997: 555).

4.3 RESEARCH APPROACHES

There are generally two approaches to research that researchers use, namely quantitative and qualitative approaches. These are defined and discussed below.

4.3.1 Quantitative Research

Quantitative research, also called the traditional, experimental, or positivist approach (Leedy & Ormrod, 2005: 94), is used to answer questions about the relationships among measured variables with the purpose of explaining, predicting, and controlling phenomena. This quantitative view of research postulates that knowledge is universally correct, but this view is contested by the qualitative approach. Quantitative data answer questions like 'how many?' or 'how frequently', and are often measured and reported on a numerical scale, permitting categorisation of pooled data, numerical reporting, statistical analysis and mathematical modelling. Quantitative data are often considered 'objective', although in actuality, the observer's attitudes about phenomena can affect their measurement (Carroll & Rothe, 2010: 3480). In the quantitative approach, the investigator relies on numerical data to test the relationships between the variables (Migiro & Magangi, 2011: 3762). The researcher tested the theories about reality, and used quantitative measures to

examine the data. The researcher related the variables to determine the magnitude and frequency of relationships. Quantitative variables were metrics that measured the effectiveness of polytechnic curriculum implementation such as assessment instruments and weighting of coursework and examination components.

Quantitative studies are either descriptive or experimental. A descriptive study establishes associations between variables, while an experiment establishes probable causality (Ivankova, *et al.*, 2006: 5; Creswell, 2003: 14). This thesis employs simple descriptive statistics from SPSS to interpret the data.

4.3.2 Qualitative Research

Qualitative research aims at explaining complex phenomena through verbal descriptions rather than testing hypotheses with numerical values (Suter, 2006: 41). Leedy and Ormrod (2005: 133) explained that qualitative research, also called an interpretive, constructivist, or post-positivist approach, is typically used to answer questions about the complex nature of phenomena, with the purpose of describing and understanding the phenomena from the participant's point of view.

4.3.2.1 Guiding assumptions of qualitative research

Mhlanga and Ncube (2003: 29) posited that assumptions of a qualitative study refer to pertinent conditions that must prevail for it to proceed. Five guiding assumptions underlying qualitative research that are vital to this study are highlighted (Schram, 2003: 7).

First, the study sought to gain an understanding of the social world through the direct personal experience in the actual setting of the phenomenon under investigation. Sheppard (2004: 162) argued that the aim of social research is to capture the character of naturally occurring human behaviour through first-hand contact with it. In this study, the researcher minimised his effect on the behaviour of the principals and lecturers and students and training managers by not influencing their views. However, the researcher bias was difficult to control as he was a civil servant employed in one of the polytechnics. The researcher-researched relations were good as there were suspicions or mistrust between them.

Secondly, the researcher acknowledged that the art of constructing knowledge is ideally interactive, punctuated with an interplay of subjective views. Importantly, the researcher engaged in personal encounters and exchanges between himself and others to develop a qualitative understanding. The researcher was able to interact effectively with polytechnic stakeholders during meetings and workshops that made it easy to understand polytechnic curriculum implementation deliverables. This process was relatively easy because the researcher was a lecturer at Harare polytechnic.

The third assumption was that the investigation into the social world called for sensitivity to the socio-economic and political context prevailing in Zimbabwe. The researcher here was accommodative of the fact that polytechnics were operating in an economy battered by hyperinflation that had in 2008 risen to 231 million percent. It therefore called for an objective analysis of the performance of polytechnics in this given difficult situation. The fourth assumption was that the investigation into the social context called for attentiveness and patience with respondents so that findings could be both specific and circumstantial. For instance, the researcher had to be flexible in his programme to suit the convenience of principals, lecturers, students and training managers in terms of time and venue for the interviews and questionnaire completion. The fifth assumption of the qualitative research was that the empirical investigation was fundamentally interpretive. The interpretation or presentation constructed of people's lives and behaviour was based upon the extent to which points of the understanding and misunderstanding were ironed out and synchronised.

In general, qualitative research is based "on a relativistic, constructivist ontology that posits that there is no objective reality; rather, there are multiple realities constructed by human beings who experience a phenomenon of interest" (Neuman, 2006: 12). People impose order on the world perceived in an effort to construct meaning; meaning lies in cognition not in elements external to us; "information impinging on our cognitive systems is screened, translated, altered, perhaps rejected by the knowledge that already exists in that system; the resulting knowledge is idiosyncratic and is purposefully constructed" (Lythcott & Duschl, 1990: 455).

In addition, Kemmis and McTaggart (2000: 597) argued that an important aim for qualitative research is 'to help *respondents* recover, and release themselves, from the constraints of irrational, unproductive, unjust, and unsatisfying social structures [*of organisations*] that limit their self-development and self-determination.' (emphasis added). Qualitative data are non-numerical, depicting views, opinions, values, and so on. Qualitative data are used to answer questions such as 'why?' and 'how?' and to capture the *Erleben* or the 'lived experience' of research participants (Carroll & Rothe, 2010: 3480). Johnson and Christensen (2008: 338) concurred with the above assertion when they posited that qualitative research is a naturalistic inquiry, which involves studying real world situations as they unfold naturally. In this instance such data would be obtained from verbal discourse through interviews with polytechnic lecturers, written documents, such as newspaper articles reporting on the relevance of polytechnic curriculum, or participatory field observations conducted by observing a polytechnic lecturer demonstrating a skill in an engineering workshop.

4.3.2.2 Researcher-researched relationship

In this study the researcher studied polytechnic curriculum strategy implementation of which he was one of the workers. This confirms what Unluer (2012: 1) describes insider-researchers as generally those who choose to study a group to which they belong. According to Bonner and Tolhurst (2002: 15), there are three key advantages of being an insider-researcher:

a) having a greater understanding of the culture being studied;
b) not altering the flow of social interaction unnaturally; and
c) having an established intimacy which promotes both the telling and the judging of truth.

In addition, insider-researchers generally know the politics of the institution, not only the formal hierarchy but also how it "really works" (Unluer, 2012: 1). They know how to best approach people. In general, they have a great deal of knowledge, which takes an outsider a long time to acquire (Smyth & Holian, 2008: 38). The researcher was quite aware of the power relations of polytechnics and how research is carried out in public institutions.

Unluer (2012: *ibid.*) laments that although there are various advantages of being an insider-researcher, there are also difficulties associated with being an insider. One disadvantage is that objectivity can be lost due to greater familiarity. Unconsciously making wrong assumptions about the research process based on the researcher's prior knowledge can be considered a bias (DeLyser, 2001: 448; Hewitt-Taylor, 2002: 33). The researcher made a careful attempt not to be influenced by prior knowledge of how polytechnics are run although there was always a strong temptation to do so. However, educational research is concerned with understanding human beings and their behaviour, involving a great number of players, each of whom brings to the research process a wide range of perspectives, including the researcher's own perspective (Unluer, 2012: 1). Porteli (2008: 85) is of the view that this situation can produce a more balanced and, in this sense, a more 'objective' account of the gradual development. This vindicates the researcher's views to be included. Insider-researchers may also be confronted with role duality. They often struggle to balance their insider role and the researcher role (DeLyser, 2001: 449; Gerrish, 1997: 28). In this research, role duality occurred as a polytechnic lecturer as well as a researcher of polytechnic curriculum strategy implementation.

Another risk may be that the insider-researcher gains access to sensitive information (Unluer, 2012: 2). To conduct credible insider research, insider-researchers must be explicitly aware of the possible effects of perceived bias on data collection and analysis, respect the ethical issues related to the anonymity of the organisation and individual participants and consider and address the issues about the influencing researcher's insider role on coercion, compliance and access to privileged information, at each and every stage of the research (Smyth & Holian, 2008: 40). This research would have been extremely biased if the researcher had a high authoritative post in polytechnics (say a Director or Permanent Secretary) as this would result in tilted power relations between the researcher and the researched. However, the researcher was an ordinary lecturer, collecting data from principals and fellow lecturers.

4.3.3 Mixed Methods Research

Mixed methods research is a procedure for collecting, analysing and 'mixing' or integrating both quantitative and qualitative data at some stage of the research process within a single study for the purpose of gaining a better understanding of the research problem (Tashakkori & Teddlie, 2003: 4).

The choice of adopting mixed method research is based on the notion that "there is more insight to be gained from the combination of both qualitative and quantitative research than either form itself. Their combined use provides an expanded understanding of research problems" (Creswell, 2009: 203). Much of the writing about mixed methods designs has focused on the use of component (parallel or sequential) designs (Creswell, 2003; Morse, 1991; Morgan, 1998). In these cases, quantitative and qualitative elements are kept separate, thus allowing each element to be true to its own paradigmatic and design requirements.

4.3.3.1 Rationale for mixing methods

Purposes necessitating mixed methods may be corroboration, expansion or initiation (Rossman & Wilson, 1985: 629). Initiation, in the form of an iterative, nested, holistic or transformative design (Caracelli & Greene, 1993: 201), requires an integration of methods in contrast to the simpler component designs typically used for corroboration or expansion.

The rationale for mixing both kinds of data within one study is grounded in the fact that neither quantitative nor qualitative methods are sufficient, by themselves, to capture the trends and details of a situation. When used in combination, quantitative and qualitative methods complement each other and allow for a more robust analysis, taking advantage of the strengths of each (Green, Caracelli & Graham, 1989: 259; Miles & Huberman, 1994; Tashakkori & Teddlie, 2003: 12).

Collins, Onwuegbuzie and Sutton (2006: 81) identified the following four major rationales for mixing quantitative and qualitative approaches:

- participant enrichment – the mixing of quantitative and qualitative techniques for the rationale of optimising the sample, such as increasing the number of participants. This also provides for:
  - complementarity which enables the researcher to obtain mutual viewpoints about similar experiences or associations (Venkatesh, *et al.,* 2012: 25);
  - completeness which ensures that the researcher obtains the total representation of experiences or association (*ibid.*); and
  - diversity which enables the researcher to obtain opposing viewpoints of the same experiences or associations (*ibid.*)
- instrument fidelity – maximising the appropriateness and/or utility of the instruments used in the study, whether quantitative or qualitative, for example, via a pilot study. Venkatesh, *et al.* (2012: 25) used the term 'developmental' as mixed methods facilitates building questions from one method that materialize from the implications of a prior method or one method presents hypotheses to be tested in a subsequent method. This also allows for compensation to counter the weaknesses of one method by employing the other (*ibid.*)
- treatment integrity –this involves mixing quantitative and qualitative techniques in order to assess the fidelity of interventions, treatments, or programmes; and
- significance enhancement – mixing quantitative and qualitative techniques in order to maximise researchers' interpretations of data (Onwuegbuzie & Leech, 2006: 479). Venkatesh, *et al.* (2012: 25) called this corroboration or confirmation.

Teddlie and Tashakkori (2009: 33) identified three strengths of mixed methods research designs, namely.

- Mixed methods research addresses simultaneously a range of confirmatory and exploratory questions with both qualitative and quantitative approaches. Although both qualitative and quantitative methods can arguably be used to address similar research questions, qualitative methods have been typically used in social sciences for exploratory research in order to develop a deep understanding of a phenomenon and/or to inductively (Venkatesh, Brown & Bala, 2012: 4; Ivankova, Creswell & Stick, 2006: 5). In contrast, quantitative methods are typically used in confirmatory studies, such as theory testing (Venkatesh, *et al.,* 2012: 4).

- Mixed methods research provides better or strong inferences. It is true that research that employs rigorous qualitative or quantitative methods offers rich insights on various phenomena. For example, interviews, a qualitative data collection approach, can provide depth in a research inquiry by allowing researchers to gain deep insights from rich narratives, and surveys, a quantitative data collection approach, can bring breadth to a study by helping researchers gather data about different aspects of a phenomenon from many participants (Venkatesh, *et al.,* 2012, 5).
- Mixed methods research provides the opportunity for a greater assortment of divergent views.

On the other hand, concurrent mixed methds research as a subset of mixed methods research has also its unique strengths. The strengths of concurrent mixed methods research are that the researcher is able to collect two types of data simultaneously and allows for perspectives from each (Terrell, 2012: 270). However, the weaknesses are that data need to be transformed to allow integration during analysis, which may lead to issues in resolving discrepancies that occur between different data types, there is little literature in this area; and results may be biased by differing priorities assigned to research design results (Terrell, 2012: 270).

In addition, some weaknesses of mixed methods research are that:

- it can be difficult for a single researcher especially when the two designs are used concurrently, in which case the study might require a research team;
- it can be more time consuming and expensive when concurrency is involved;
- it requires that the researcher(s) learn multiple methods to combine them knowledgeably, defend the use of multiple methods, utilise them professionally; and
- it is not without conflict because methodological purists maintain that researchers should work within either a quantitative or a qualitative research design, never mixing the two designs in a single study (Cronholm & Hjalmarsson, 2011: 89).

Being wary of each of the above weaknesses helps the researcher to deal with them effectively. One way to overcome these weaknesses is to avoid underestimating them and get thorough training from an experienced researcher in mixed methods research. Though research teams are quite ideal, they are also expensive to run and also depend on the magnitude of the research process.

This study adopts a triangulation of both survey and phenomenology as research genres (Neuman, 2006: 149). Thus, mixed methods research will be used in a limited way because in combination, it provides the best opportunity to address the questions set, or specific sub-facets of the research topic (Briggs & Coleman, 2007: 29). In addition, it also made use of complementarity (Venkatesh*, et al.,* 2012: 25) as another purpose of choosing mixed methods.

Tashakkori and Teddlie (2008: 103) noted that the reasons for using mixed methods are not always "explicitly delineated and/or recognised" by researchers who conduct mixed methods research. The explication of the purposes for conducting mixed methods research is an onus on researchers conducting and reporting such work (Venkatesh*, et al.*, 2012:6).

4.3.3.2 Complementarity in mixed methods research

Complementarity is defined as an epistemological design to understand human behaviour through the use of separate, but dialectically related research approaches (Carroll & Rothe, 2010: 3479). Complementarity allows the researcher to gain a fuller understanding of the research problem and/or to clarify a given research result. This is accomplished by utilising both quantitative and qualitative data (Hesse-Biber, 2010: 4). In addition, Yauch and Stendel (2003: 466) posited that "both complementarity and triangulation are useful for cross-validation when multiple methods produce comparable data."

Complementarity as a mixed methods research attribute can be illustrated using 'Bergson's Box' (Bergson, 1949). In this illustration, there are two ways of knowing something. One way of knowing an object involves entry into the object. The other way is by looking from the outside. In Rothe's framework (Carroll & Rothe, 2010: 3481), this can be extended to complementarity in investigations of social and

individual actions from the inside ('looking in', or *'verstehen'*, that is, qualitative approaches), or examining these actions from the outside ('looking at', or *erklären*, that is, quantitative approaches).

In this study, the researcher as a lecturer in a polytechnic, was already 'inside or looking in' thus applying qualitative approaches to this mixed method design is appropriate. Principals are best suited to describe their lived experiences. Senior lecturers and training managers of selected companies 'looked at' the problem of this study, and thus the quantitative approach was applicable as they examined strategic leadership competencies of principals from 'outside.' Inside the box is subjective meaning and this could mean the polytechnic principals' experiential 'lived reality' or 'paramount reality'. Through social experiences – the reciprocal relaying of one's experiential reality with others ('looking in' to each other's paramount reality), individuals can understand others and be understood (Carroll & Rothe, 2010: 3482). This is analogous to phenomenological inquiry which explores "how human beings make sense of experience and transform experience into consciousness….how they perceive it, describe it, feel about it, judge it, remember it, and make sense of it" (Patton, 2002: 104).

People use their own experiences to understand one another and rely on their experiences with others to understand their own experiences (Carroll & Rothe, 2010: 3482). Thus, qualitative researchers may 'look in' by asking principals to relate, as fully as possible, to their own experienced reality. This was done by interviewing polytechnic principals about their own experiences and attitudes regarding the extent to which they were competent in managing the implementation of polytechnic curriculum strategy effectively.

Researchers then use the participants' argot and historical or cultural frames of reference to seek to understand their personal experiences to identify shared streams of consciousness within these experiences. These streams of consciousness represent the paramount reality, or in more empirical terms, they form the categories of meaning that are typically transformed into dominant themes (Carroll & Rothe, 2010: 3482). Principals' argot included specific jargon and language peculiar to their field such as strategic plans, public private partnerships,

internal and external assessment, manpower development leave, just to mention a few. This type of language should be known by a researcher if he or she is to understand their lived experiences.

Verstehen requires some degree of reconstruction of the individual's paramount reality. However, the curriculum implementation strategies closely mirror the participants' versions of reality. Qualitative researchers may use secondary data, for example, polytechnic practical examination items and mark sheets to explore lecturers' competences in aligning with industry expectations. In such a case, the researcher is still 'looking in', but in some way removed from direct interaction with polytechnic lecturers, thus requiring a different degree of reconstruction of the paramount reality (Carroll & Rothe, 2010: 3482). Knowledge also arises through examining the 'outside' of the box ('looking at'), representing objective meaning. Here, the quantitative researcher aims at providing generalisable answers, for example, identifying factors impacting on effective polytechnic curriculum implementation. This relies on structured, parsimonious language and seeks to classify characteristics and experiences to permit quantification, thus permitting statistical analyses (Carroll & Rothe, 2010: 3482).

Carroll and Rothe's (2010: 3479) conceptual framework of complementarity is grounded in epistemology. This can be achieved for example, through knowledge that ranges from polytechnic practical assignments and apprenticeship experiences to theoretical models learnt in class. Each source of knowledge requires a different level of reconstruction of experiences, the combination of which helps us understand the complexity and context of that phenomenon. That explains why polytechnic curricula, like any other curricula, are organised hierarchically from the National Certificate to the Doctor of Technology (D.Tech) in each area.

4.3.4 Steps in Conducting Mixed Methods Research

Designing a mixed methods study involves a number of steps, which include dealing with the purpose of the study, the research questions and the type of data to collect (Creswell, 2003: 16). Designing mixed methods, however, also involves at least three additional steps, namely deciding whether to use an explicit theoretical lens, identifying the data, data collection procedures and identifying the data analysis and

integration procedures (Caracelli & Greene, 1993: 199; Morgan, 1998: 369; Creswell, 2003: 16).

The first step involves whether to use an explicit theoretical lens (philosophical basis or paradigm) that underlies a researcher's study and subsequent methodological choices (Migiro & Magangi, 2011: 3760). In this study, both positivist and naturalist paradigms were used.

The second step involves deciding how data collection will be implemented and prioritised. Implementation refers to the order in which the quantitative and qualitative data are collected, concurrently or subsequently, and priority refers to the weight, or relative emphasis given to two types of data, equal or unequal (Morgan 1998: 370; Creswell & Plano Clark, 2007: 7). Priority in this study was given to the quantitative phase, with the qualitative phase being used to explain the findings of quantitative data.

Buber, Gadner and Richards (2004: 142) explained that the type of data used in qualitative and quantitative approaches have been used to distinguish between them (textual or numeric; structured or unstructured), the logic employed (inductive or deductive), the type of investigation (exploratory or confirmatory), the method of analysis (interpretive or statistical), the approach to explanation (variance theory or process theory), and for some, on the basis of the paradigm, (positivist or interpretive/critical; rationalistic or naturalistic).

The third step involves deciding the point at which data analysis and integration will occur. In mixed methods studies, data analysis and integration may occur by analysing the data separately, by transforming them, or by connecting the analyses in some way (Onwuegbuzie & Teddlie, 2003: 360; Creswell & Plano Clark, 2011: 67). A researcher could, for example, analyse the quantitative and qualitative data separately, and then compare and contrast the two sets of results in the discussion. As an alternative strategy, themes that emerge from the qualitative interview data could be transformed into ratings and subsequently compared to the quantitative survey data (Creswell & Plano Clark, 2007: 118; Morse & Niehaus, 2009: 9).Thereafter the report is written to discuss findings and conclusions (Garuth, 2013:

115) although Migiro and Magangi, (2011: 3759) stated that the report writing can actually start while the data analysis is being done.

4.3.5 Concurrent Mixed Methods Design

Six types of mixed methods research commonly used in educational research include:

- convergent parallel, to simultaneously collect, merge, and use both quantitative and qualitative data;
- explanatory sequential, to first gather quantitative data and second to gather qualitative data to enhance on the quantitative findings;
- exploratory sequential, to first collect qualitative data to investigate a phenomenon and second gather quantitative data to explain the qualitative findings;
- embedded, to gather quantitative and qualitative data at the same time while one's design purpose is to support the findings of the other design;
- transformative, to use either the convergent, explanatory, exploratory, or embedded design types while including the design types within an evolving context (a possible change in perspective); and
- multiphase, to examine a subject or issue through a number of studies (Garuth, 2013: 114; Creswell, 2012: 98).

After considering these options, an exploratory sequential, triangulated, embedded (concurrent) mixed methods research (MMR) design was selected as the most appropriate methodology. In concurrent nested designs, quantitative and qualitative data are collected and analysed at the same time. However, priority is usually unequal and given to one of the two forms of data – either to the quantitative or qualitative data (Hanson, Creswell, Plano Clark, Petska & Creswell, 2005: 229). As stated above, greater emphasis was given to the quantitative aspects of the research than the qualitative aspects.

In concurrent mixed methods design (also called parallel or simultaneous designs), the QUAL and QUAN strands of the study occur in a parallel manner, either

simultaneously (starting and ending at approximately at the same time) or with some time lapse, that is, data collection for one strand that starts or ends later than the other (Teddlie & Tashakkori, 2009: 26). The QUAN and QUAL phases are planned and implemented to answer related aspects of the same research question(s) (Creswell & Plano Clark, 2011:91). Concurrent mixed methods research design can be summarised by the following diagram (Figure 4.1).

Figure 4.1: Concurrent mixed methods research design
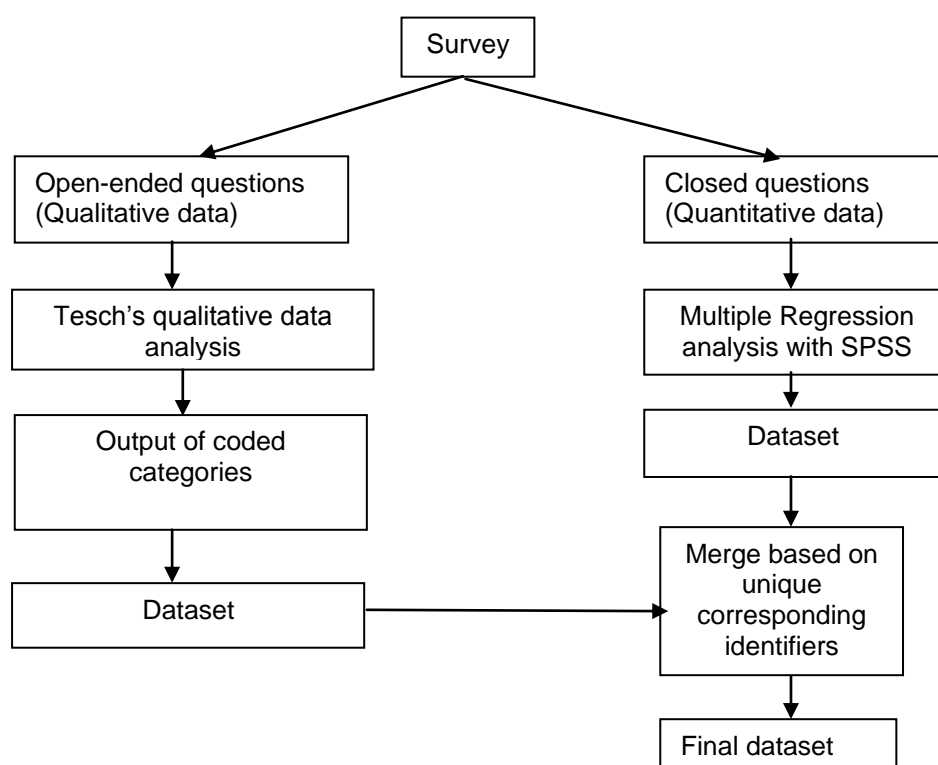
Source: Driscoll, Appiah-Yeboah, Salib and Rupert (2007: 20)

When conducting a mixed methods research data analysis, at least one qualitative analysis and at least one quantitative analysis are needed to conduct a mixed analysis (Creswell & Tashakkori, 2007: 109). In this study, only one quantitative analysis and one qualitative analysis were conducted. The qualitative and quantitative analyses can be conducted in chronological order, or sequentially (i.e., sequential mixed analysis) or they can be conducted in no chronological order, or concurrently, that is, concurrent mixed analysis (Combs & Onwuegbuzie, 2010: 4). In this concurrent MMR, the qualitative and quantitative analyses are not done in any

order. The order only matters in a sequential exploratory MMR since the results of one phase explain or justify the occurrence of the other phase for implementation (Ivankova*, et al.*, 2006: 5)

Data analysis usually involves transforming the data, and integration usually occurs during the data analysis stage (Hanson*, et al.*, 2005: 229). This is because concurrent mixed methods data collection strategies are employed to validate one form of data with the other form, to transform the data for comparison, or to address different types of questions (Creswell & Plano Clark, 2007: 118). In many cases, the same individuals provide both qualitative and quantitative data so that the data can be more easily compared. In this research, the senior lecturers and principals responded to the questionnaire and interview schedules respectively. This was done for corroboration and complementarity of results (Carroll & Rothe, 2010: 3480).

Teddlie and Yu (2007: 92) describe how researchers actually combine probability and purposive sampling in their concurrent mixed methods (MM) studies. They have delineated two basic overall concurrent MM sampling procedures, among others. These two basic procedures are as follows: concurrent MM sampling occurs when probability sampling techniques are used to generate data for the QUAN strand, and purposive sampling techniques are used to generate data for the QUAL strand (Teddlie & Yu, 2007: 92). Concurrent MM designs allow researchers to triangulate the results from the separate QUAN and QUAL components of their research, thereby allowing them to "confirm, cross-validate, or corroborate findings within a single study" (Creswell, Plano Clark, Gutmann & Hanson, 2003: 229). These sampling procedures occur independently.

Concurrent MM sampling utilises a single sample generated through the joint use of probability and purposive techniques to generate data for both the QUAN and QUAL strands of an MM study (Tashakkori & Teddlie, 2003a: 713). This occurs, for example, when a sample of participants, selected through the joint application of probability and purposive techniques, responds to an MM survey that contains both closed and open-ended questions. In this study, senior lecturers were chosen using stratified random sampling technique while the purposive sampling technique was used to select polytechnic principals. This is because principals were rich in the

desired information (Mason, 2002: 140; Patton, 2002: 110; Tashakkori & Teddlie, 2003a: 713).

Specifically, qualitative data in the form of written responses to open-ended questions during in-depth interviews were collected to examine two different issues: the strategic capacities principals use during the implementation of polytechnic curriculum and the strategies that they used to manage effective implementation of their curricula. Quantitative data, in the form of descriptive statistics scores, were nested and collected to examine strategies used in polytechnics to manage the effectiveness of curricula. After analysing the qualitative and quantitative data separately, the results were used to help answer the research questions guiding this study (Hanson*, et al.*, 2005: 230).

4.3.5.1 Mixing data in concurrent mixed method research design

Data mixing or integration characterises the final stage whereby both quantitative and qualitative data are integrated into either a coherent whole or two separate data sets (that is, qualitative and quantitative) of coherent wholes (Cameron, 2009: 144). Deciding on how to mix depends on the purpose of the study, its design and the strategies used for data collection and analysis (Ivankova*, et al.*, 2006: 14). In this research, quantitative and qualitative data are integrated into one whole data set where the qualitative responses explain the quantitative findings. This means explanations given during the qualitative phase give meaning to the numerical data generated by the findings of the quantitative phase. Then the results from the two stages are integrated at the interpretation stage of the study (Creswell, 2003: 212). It in this light that Bazeley (2010: 432) defines integration in MMR:

> Integration can be said to occur to the extent that different data elements and various strategies for analysis of those elements are combined throughout a study in such a way as to become interdependent in reaching a common theoretical or research goal, thereby producing findings that are greater than the sum of the parts.

4.3.5.2 Data analysis in concurrent mixed methods research

Mixed analyses decisions involve the point at which the various analysis strands interact. Parallel mixed analysis is likely the most common mixed analysis technique which involves two separate processes, for example, a quantitative analysis of quantitative data and a qualitative analysis of qualitative data (Teddlie & Tashakkori, 2009: 266).

According to Teddlie and Tashakkori (2009: 266), "Although the two sets of analyses are independent, each provides an understanding of the phenomenon under investigation. These understandings are linked, combined, or integrated into meta-inferences". The analysis of embedded qualitative responses can augment and explain complex or contradictory survey responses (Driscoll, *et al.*, 2007: 24). For example, structured responses to the survey of polytechnic lecturer responses on the effectiveness of polytechnic curriculum might indicate weak support for procurement of specific engineering equipment for student training. Such weak support might be explained by principals' responses during interviews. Interpretation involves stating the larger meaning of the findings and personal reflections about the lessons learned (Cohen, Manion & Morrison, 2007: 184). Basically, the qualitative part helps the researcher to interpret or explain the quantitative part of the research (Ivankova, *et al.*, 2006: 14).

4.4 POPULATION AND SAMPLING

Concurrent mixed methods sampling involves the selection of units of analysis for mixed methods study through the simultaneous use of both probability and purposive sampling (Teddlie & Yu, 2007: 89).

4.4.1 Sampling Approaches

Quantitative research relies on a large, randomly drawn sample, while qualitative studies are associated with smaller, purposive (non-random) samples. However, there are no statistics for generalising from small purposive samples and it is not possible to do fine hermeneutic analysis on data from large random sample (Bazely, 2002: 5). Although sampling procedures in the social and behavioural sciences are often divided into two groups (probability, purposive), there are actually four broad

categories, which are probability sampling, purposive sampling, convenience sampling and mixed methods sampling (Teddlie & Yu, 2007: 77-78).

Sampling designs comprise two major components: sampling scheme and the sample size. The sampling scheme denotes the explicit strategies used to selectunits (for example, people, groups, settings, and events), whereas the sample size indicates the number of units selected for the study (Migiro & Magangi, 2011: 3760). In this research, the sampling schemes for the concurrent mixed methods research denoted senior lecturers for the quantitative data collection and principals for qualitative data collection. Concurrent MM sampling in which probability sampling techniques are used to generate data for the QUAN strand and purposive sampling techniques are used to generate data for the QUAL strand. These sampling procedures occur independently (Teddlie & Yu, 2007: 89).

In mixed methods studies, the researcher must take sampling design and sample size into consideration for both the qualitative and quantitative phases of the study. Thus, mixed methods sampling designs represent the framework within which sampling occurs, including the number of types of sampling schemes, as well as the sample size (Onwuegbuzie & Leech, 2007: 112). In addition, there are also two broad categories in which sampling schemes fall:

- random sampling (that is, probabilistic sampling) schemes; or
- non-random sampling (that is, non-probabilistic sampling) schemes (Patton, 2002; Miles & Huberman, 1994).

Stratified random sampling was used to select the samples for the quantitative part of the study, while purposive sampling was used to select principals because they were considered to be rich in information on how polytechnic curriculum implementation could be effectively managed (Patton, 2002: 110). One type of sampling procedure does not set the stage for the others in concurrent mixed methods sampling studies; instead, both probability and purposive sampling procedures are used at the same time (Teddlie & Yu, 2007: 89).

Proportional stratified random sampling design was also used to select senior polytechnic lecturers that would respond to a polytechnic curriculum effectiveness strategy implementation questionnaire. The population of lecturers was first organised into groups or strata whose members had common characteristics and then samples were selected from these groups (Briggs & Coleman, 2007: 133). Lecturers were basically grouped by gender, work experience and status and where possible, an equivalent number of male and female lecturers was taken.

The polytechnic national diploma students who had undergone industrial attachment were chosen by random sampling design because they had similar characteristics (Huck, 2012: 96) and each student in the population had an equal probability of selection (Blumberg, Cooper & Schindler, 2008: 175). Company training managers were chosen purposively because they possessed adequate knowledge of how polytechnic curriculum implementation is managed (Briggs & Coleman, 2007: 135).

4.4.2 Generalisablity

The issue at stake in sample size is generalisability. For example, with small samples, one may obtain a result that cannot be generalised to the population. They are, therefore, of little scientific value. The issue of generalisability is only raised if all possible observations are not taken into account, or the extent to which conclusions regarding relationships that are based on data collected can validly be applied to characteristics of respondents not studied (Hultsch, MacDonald, Hunter, Maitland & Dixon, 2002: 346). Hultsch, *et al.* (2002: 347) further argue that:

> Sampling and generalisability are fundamental methodological issues in social and behavioural sciences research. For reasons such as inaccessibility and cost, researchers must examine only a portion of the universe of possible observations that could be made.

In the current research, the size of the sample was determined as follows:

- Principals and lecturers from Zimbabwean polytechnics. These were chosen because they are involved in the crafting and implementation of curriculum strategy. There are eight polytechnics employing about 1 004 lecturing staff;

- National diploma students who had undergone industrial attachment as they would be able to comment on the effectiveness of the curriculum in preparing them for their jobs. In 2009 there were 13 217 students enrolled at polytechnics (Government of Zimbabwe/United Nations Country Team, 2010: 54). In 2014 there were 2500 national diploma students in 8 polytechnics.
- Training Managers from some of the main employers of Zimbabwean polytechnic graduates; their views were considered important in order to ascertain the extent to which the curriculum offered is effective.

This was a huge number and needed to be reduced to a manageable size for research purposes. Guidance provided by Watson (2001: n.p.) and Neuman (2006: 400) was used to determine the sample size needed. Watson (*ibid.*) suggested the following sample sizes for various population sizes in order to give a 95% confidence level. He also suggested increasing the sample size somewhat to allow for a 5% margin of error which is the standard that most researchers are satisfied with.

Table 4.1: The sample size

Category	Population	Watson's Suggested Sample size	The researcher's sample size (based on Neuman's recommendation of 30%)
Lecturers	1 000	147	150 lecturers
Principals	Smaller than 100	All	5 polytechnics
Company training managers	Smaller than 100	All	12 large-industry representatives
Polytechnic students	15 000	170	100 students

The total sample group therefore comprised 267 respondents.

4.5 STEPS IN THE RESEARCH PROCESS

4.5.1 Steps in Conducting the Qualitative Research

Slavin (2007: 124) outlined the following six steps that are generally followed when conducting qualitative research:

- Identifying what is to be studied. In the process, decisions are made about the nature of the interaction, the role of the researcher and ethical considerations. During this preparatory phase a written application for permission to carry out the research study was submitted to Higher and Tertiary Education Ministry head office in Harare. The phase also included the identification of the five polytechnics to be included in the study as well as the logistical arrangements of the fieldwork.

- Identifying whom to study. Decisions are made about the participants or sites to be studied, the length of time for data collection, and the possible variables to be considered. During this second phase of the empirical investigation, in-depth interviews were organised with principals included in the study.

- Collection of data. Data collection was done over a period of two months and the main focus was on interviews with principals, a basic form of data such as the field notes taken during interviews. In addition, a tape recorder was used for recording the interviews.

- Analysis of data. Data analysis consists of synthesising the information obtained from the interviews. The researcher worked with the data, organised and broke them into manageable units, coded them and searched for patterns. Data analysis involved identifying categories, recurrent themes and sub-themes that emerged from the interviews conducted with respective participants. The analysis of data also involved the interpretation of the meanings and actions of the polytechnic principals in curriculum implementation.

- Generation of findings as the data collection process proceeds. These were collated to produce the findings discussed in Chapter 5.

- Making data interpretations and conclusions. Data interpretation refers to developing ideas about the findings and relating them to the literature and to broader concerns and concepts (Bogdan & Biklen, 2007: 159). In this study, interpretation of interview data from principals was done in relation to polytechnic curriculum strategy literature.

4.6 INSTRUMENTATION AND DATA COLLECTION TECHNIQUES

Data collection techniques depend on the nature of the research. Mixed methods research will obviously use collection methods that are applicable to both quantitative and qualitative approaches.

To collect data for the study, the researcher identifies independent, dependent and control variables (Creswell, 2005: 199), and collects the data using existing or pilot-tested, self-developed instruments intended to yield reliable and valid scores.

Sources of data fall within two broad categories: (a) primary, where data are collected specifically for purposes of particular research question, and (b) secondary, whereby existing data collected for non-research purposes are used for research (Leedy & Ormrod, 2005: 35). In quantitative research, examples of primary data sources are structured questionnaires (e.g. surveys on quality of examination items set by lecturers) or researchers' observations (e.g. counts of practical tests given by polytechnic lecturers of a particular department as preparation for HEXCO practical examinations).

Secondary data usually do not involve self-report, although some data sources do, for example, previous years' mark sheets data used for research purposes. Although qualitative studies frequently use primary data like interviews, others involve analyses of media reports and other secondary data sources. For example, lecturer attitudes about effective implementation of strategic plans might be explored through interviews (primary data) or by analysing schemes of work to ensure conformity with the Ministry of Higher and Tertiary Education, Science and Technology Development standards of assessment (secondary data). In this study, primary data were collected using semi-structured interviews and questionnaires, while secondary data were collected from strategic plans, records on pass rates, internal assessment files and external assessment reports.

4.6.1 Data Collection Techniques: Quantitative

The quantitative part of the research employed a survey research design, utilising questionnaires to gather respondents' beliefs or opinions in many research institutions (Neuman, 2006: 43). In this study different questionnaires were administered to different respondent groups (Appendix D, E and F). A self-administered Likert-type questionnaire on a 5-point frequency scale with descriptors ranging from 1 (strongly disagree) to 5 (strongly agree) was used. Quintessentially, a Likert scaling should be undertaken by developing groups of items that are statistically tested to identify the degree to which they measure the same things

(Aiken in Adams & Cox, 2008: 21), hence the use of factor analysis and Cronbach's Alpha. In this research, items in the questionnaires were grouped according to the variables from the research questions. The lecturer questionnaire, for example had five groups of items:

- Principal roles;
- Strategic leadership capacities;
- Challenges of implementing PCS;
- Implementation of PCS; and
- Standards for measuring PCS.

A questionnaire is constructed basing the decisions on the wording and ordering of questions, wording selection of response categories, formatting and mode used to administer the questionnaire (Martin, 2006: 3). In this study, the wording of items and their ordering was given due attention in order to produce a coherent and logical set of questions that were easy to understand. Although participants often seem to pay little attention to survey items or instructions, they are often particularly sensitive to delicate, very small changes in syntax (Martin, 2006: 4).

The researcher took note on the language used on the item avoiding complex and ambiguous items (Martin, 2006: 3). One of the problems with lengthy questionnaires is that respondents might skim reading them; thereby increases the chances of participants interpreting wrongly complex questions (Adams & Cox, 2008: 19).The questionnaires were therefore short and precise so that they were clearly understood by the students, lecturers and training managers.

The questions in the questionnaires were grouped according to categories, which is supported by Adams and Cox (2008: 19) when they argued that:

> Grouping questions together under a common themed heading will help the
> respondent contextualise the subsequent questions. This approach will also
> help you identify how the sequence is likely to affect the respondent. The order
> in which questions are presented may bias your respondent to give more or
> less favourable responses. This can also happen with the response scales

whereby a respondent gives the same answer throughout a section without reading the questions.

The questionnaires were hand-delivered by the researcher, avoiding postal services because of their unreliability. The researcher asked for the completion of the questionnaires while each principal was being interviewed. In this way, the researcher avoided having to call again as this would increase the cost of data collection. The duration of data collection was two months.

4.6.2 Data Collection Techniques: Qualitative

In contrast to the quantitative approach, qualitative research approaches emphasise a constructivist position, which allows for multiple meanings of individual experiences (Denzin & Lincoln, 2005: 10). In this approach, a researcher develops a complex, holistic picture, analyses words, reports detailed views of informants, and conducts the study in a natural setting (Creswell, 2003: 211). The goal of qualitative research is to explore and understand a central phenomenon (Creswell, 2003: 212). The research questions are general and broad, and seek to understand participants' experiences with the central phenomenon. The sample size is often small and purposefully selected from those individuals who have the most experience with the studied phenomenon (Patton, 2002: 107) as indicated in Table 4.2 above.

4.6.2.1 Qualitative data collection tools

Qualitative data were collected from polytechnic principals and vice principals by means of in-depth interviews as they could provide rich information on their lived experiences with respect to their perceptions on the role played by strategic leadership in implementing curriculum strategy.

Qualitative interviews provide opportunities for exploring understanding and meanings in depth (Arksey & Knight, 1999). Thus, this was very suitable for this study in which the researcher wanted to get rich and detailed information about intangibles from practitioners' viewpoints. Qualitative interview questions can be either unstructured or semi-structured (Bryman, 2004). In this study, interview questions were designed to be semi-structured, as the researcher was looking at

multiple cases, and a semi-structured interview was more appropriate in terms of ensuring "cross-case comparability" (Bryman, 2004: 324) than an unstructured interview. An interview schedule (Appendix C) was used with the same key questions being asked of each interviewee, but allowing for some flexibility and for greater probing where necessary.

Rubin and Rubin (2005: 64) argued that "interviewees should be experienced and knowledgeable in the area you are interviewing about". Experienced interviewees can make interview results more convincing, and interviewees who are knowledgeable about the research problem have the potential to provide useful information that the researcher needs (Rubin & Rubin, 2005). In this study, principals of polytechnics were targeted for interviews.

4.7 DATA MANAGEMENT AND ANALYSIS

Data analysis was both qualitative and quantitative. SPSS was employed to analyse quantitative data emanating from the questionnaires as it is strong in coding, ordering, structuring, retrieving and visualising the gathered data. Coding was used to analyse qualitative data. This type of data was generated from in-depth interviews with principals.

4.7.1 Quantitative Data Analysis

Responses from the questionnaires were quantitised in descriptive statistics such as frequency tables, mean and standard deviation (Tashakkori & Teddlie, 1998: 126). The term 'quantitise' describes the process of transforming coded qualitative data into quantitative data, and 'qualitise' describes the process of converting quantitative data into qualitative data (Tashakkori & Teddlie, 1998: 126). The quantitative phase of the study was analysed using factor analysis.

4.7.1.1 Factor analysis (FA)

Factor analysis is used to test internal validity of the questionnaire while Cronbach's Alpha tests its internal reliability or consistency. Hair, Tatham, Anderson and Black (1995: 366) defined factor analysis as "a generic name given to a class of

multivariate statistical methods whose primary purpose is to define the underlying structure in a data matrix. It addresses the problem of analysing the structure of the relationships (correlations) among a large number of variables by defining a set of common underlying dimensions, known as factors".

Factor analysis is a multivariate statistical procedure that has many uses (Hair*, et al.*, 1995: 366), three of which will be briefly noted here. Firstly, factor analysis reduces a large number of variables into a smaller set of variables (also referred to as factors). Secondly, it establishes underlying dimensions between measured variables and latent constructs, thereby allowing the formation and refinement of theory. Thirdly, it provides construct validity evidence of self-reporting scales. Thompson (2004: 5) adds, "… factor analysis is intimately involved with questions of validity … Factor analysis is at the heart of the measurement of psychological constructs." One of the objectives of factor analysis is that it addresses multicollinearity, that is, two or more variables that are correlated (Williams & Onsman, 2010: 2).

A construct is a theoretical approach to express what cannot be directly observed, for example, motivation, intelligence, anxiety (Schwarz, 2011: 4). In this study, a principal's skill in the implementation of curriculum is an example of a construct. Technically a construct is an item battery in a questionnaire, such as a statement which a respondent might agree or disagree with in a Likert Scale. A dimension (also called a factor) is a certain sub-structure of a construct. Several items in a questionnaire can be constructed to form one factor or dimension (Schwarz, 2011: 4). Similarly, each variable, dimension or factor from a research question can be broken down into several items in a questionnaire. The decision about which factors to use rests with the researcher (Boyd, Westfall & Stasch, 1989: 630). Prior to the extraction of the factors, several tests were used to assess the suitability of the respondent data for factor analysis.

4.7.1.1.1 Reliable measurements or tests in FA

These tests included Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (Kaiser, 1970: 410; Kaiser, 1974: 113) and Bartlett's Test of Sphericity (Bartlett, 1950: 79). The KMO index, in particular, is recommended when the cases to variable ratio are less than 1:5. The KMO index ranges from 0 to 1, with 0.50 considered

suitable for factor analysis (Hair*, et al.*, 1995: 366; Tabachnick & Fidell, 2007: 140). The following are KMO values and their interpretation.

KMO-Value

- 0.00 to 0.49 unacceptable
- 0.50 to 0.59 miserable
- 0.60 to 0.69 mediocre
- 0.70 to 0.79 middling
- 0.80 to 0.89 meritorious
- 0.90 to 1.00 marvellous(Schwarz, 2011: 25)

As a rule of thumb, KMO should be 0.60 or higher in order to proceed with a factor analysis (Schwarz, 2011: 26). Kaiser (1970) originated the idea of suggesting that 0.50 be a cut-off value, and 0.8 or higher be a more desirable value. Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was conducted to determine whether adequate correlation exists between the individual items contained within each of the sections of the questionnaires, before a factor analysis could be conducted (Hair*, et al.*, 1998: 99).

The Bartlett's Test of Sphericity should be significant ($p < .05$) for factor analysis to be suitable (Hair*, et al.*, 1995: 366; Tabachnick & Fidell, 2007: 610). Factor analysis utilises some relationships between variables and the *R*-matrix should not be an identity matrix, so that all correlation coefficients would not be reduced to zero. Therefore, researchers want this test to have a significance value of less than 0.05. A significant test is important because it tells us that the *R*-matrix is not an identity matrix; therefore, there are some relevant relationships between the variables the researcher hope to include in the analysis. For these data, Bartlett's test is highly significant at $p < 0.001$, and therefore factor analysis is appropriate (Tabachnick & Fidell, 2007: 610; Field, 2005: 640).

A general rule of thumb is to have at least 300 cases for factor analysis. "Solutions that have several high loading marker variables (>0.80) do not require such large sample sizes (about 150 cases should be sufficient) as solutions with lower loadings" (Tabachnick & Fidell, 2007: 613). Field (2000: 443) posits that the more frequent and

higher the loadings are on a factor, the smaller the sample can be. A factor loading is the correlation between a variable and a factor that has been extracted from the data (Field, 2000: 443). The table illustrates an example of factor loading of variable X_1 and its factors.

Table 4.2: Factor loadings for variable X_1.

Variables	Factor I	Factor II	Factor III
X_1	0.932 or 93.2 %	0.013 or 1.3 %	0.250 or 25%

It can be noted from Table 4.3 that variable X_1 is highly correlated with Factor I (93.2 %), but negligibly correlated with Factors II and III. Factor loadings give rise to communalities. The communality of a variable is the sum of the loadings of this variable on all extracted factors (Rietveld & Van Hout, 1993: 264). To obtain communality of the above variable X_1, the factor loadings are simply squared and added together as shown below.

$(0.9322^2 + 0.0132^2 + 0.250^2) = 0.93129$

This is called the communality (or R^2 in SPSS) of the variable X_1. Therefore communality of a variable represents the proportion of the variance in that variable that can be accounted for by all ('common') extracted factors (Rietveld & Van Hout 1993: 264). Thus if the communality of a variable is high, for example 93% for X_1 above, the extracted factors account for a large proportion of the variable's variance. This means that this particular variable is reflected well via the extracted factors, and hence the factor analysis is reliable.

4.7.1.1.2 Cronbach's Alpha

Cronbach's Alpha coefficient or the alpha value is used to measure internal reliability of the questionnaire (Hair*, et al.*, 1995: 618). Values of the Cronbach's Alpha coefficient range from 0 to 1.0 with higher values indicating higher reliability among indicators. Indicators with low Alpha values suggest low internal reliability and such items should be dropped (Hair*, et al.*, 1995: 618).

4.7.2 QUALITATIVE DATA ANALYSIS

Qualitative data consists of quotations, observations and excerpts from documents (Patton, 2002: 47). The data often reflect an attempt to capture the perceptions of participants from the inside (Drew, Hardman & Hosp, 2008: 50). Data from observations consist of detailed descriptions of people's activities, behaviours, actions and the full range of interpersonal interaction and organisational processes that are part of observable human experience. The data that emerged from this study yielded detailed, thick descriptions obtained from interviews that captured direct quotations about Zimbabwean polytechnic principals' personal feelings, perspectives, experiences and opinions. The principals' opinions and perspectives were particularlyfocused on their roles, how they implemented curriculum strategy and the challenges they faced in developing, implementing and evaluating curriculum strategy.

Qualitative data analysis involves an inductive process of examining, selecting, categorising, comparing, synthesising and interpreting data for plausible explanations to address the principal aim of the study (Cohen, *et al.*, 2007: 184; McMillan & Schumacher, 2010: 367; White, 2005: 168). Qualitative researchers are interested in understanding the meaning people have constructed, that is, how people make sense of their world and the experiences they have in the world (Merriam, 2009: 13; Patton, 2002: 104). Qualitative information from in-depth interviews with principals and their deputies was recorded by tape recorders with some brief note-taking. The views, beliefs and opinions from in-depth interviews were coded and analysed for themes that emerged for theory building.

Suddaby (2006: 638) argued that "qualitative software programs can be used in organising and coding data, but they are not suitable for the interpretation of data". In the interpretive process of data analysis, the researcher acts as an active element and his theoretical sensitivity tended to be very important. The researcher recognises that his experience and memory of the interviews is additional data and is likely to be important in the interview process.

Codes can also be revisited during analysis in an iterative analytic process to allow for the recognition of emergent themes and insights. Conversely, quantitised data are fixed and one-dimensional; that is, they are composed of a single set of responses prospectively representing a conceptual category determined prior to data collection. They cannot change in response to new insights in analysis. In short, "reducing rich qualitative data to dichotomous variables renders them single dimensional and immutable" (Driscoll, *et al.,* 2007: 25). The term quantitising has been coined to describe the process of transforming coded qualitative data into quantitative data and qualitising to describe the process of converting quantitative data to qualitative data (Tashakkori & Teddlie in Driscoll, Appiah-Yeboah, Salib & Rupert, 2007: 20).

There are several strategies by which qualitative data collected can be quantitised to create a single comprehensive dataset. One of the more common strategies counts the number of times a qualitative code occurs. Some qualitative data analysis software programs (such as Atlas or NVivo) can generate these reports although none of these was used to analyse qualitative data. Other approaches to quantitising qualitative data include enumerating the frequency of themes within a sample, the percentage of themes associated with a given category of respondent, or the percentage of people selecting specific themes (Onwuegbuzie & Teddlie, 2003). In all these cases, the quantitised data can be statistically compared to the quantitative data collected separately.

Yet another strategy for quantitising qualitative data, enumerates whether or not qualitative responses included certain codes. In other words, rather than seeking to understand how many times a certain code was provided by each participant or the frequency with which they appeared, this strategy quantitises the presence or absence of each code for each participant (Driscoll*, et al.*, 2007: 22). In this study, data captured during interviewing polytechnic principals was quantitised into codes and themes, which were used for explaining the quantitative responses.

Tesch's open coding method of data analysis (Tesch, 1990: 85) was adopted for this study, as follows:

- The transcriptions of the interview data were read carefully by the researcher; making sense out of the data and jotting down some ideas as they came to mind;

- He picked one interview document after the other, going through them carefully, being more interested in the underlying meaning than substance of the information;

- After going through all the interview documents, the researcher developed a list of all topics before clustering together the similar ones. The topics were then formed into columns, which were arranged as major topics, unique topics, and leftovers;

- He compared the list of topics with the original interview data and then abbreviated the topics and wrote the codes next to the appropriate segments of the text. This preliminary organising draft was tried to check whether new categories and codes could emerge;

- Final categories were formed from the most descriptive wording for the topics. Topics related to each other were grouped together in order to reduce the total list of categories. Lines were drawn between the categories to delineate their relationships;

- The final decision on the abbreviation for each category and the alphabetised codes was made;

- The researcher brought together the data material belonging to each category in one place and performed preliminary analysis; and

- Existing data was recorded when necessary.

Data analysis in the current study was undertaken as an on-going and iterative process. This means the processes of data collection, processing, analysis and reporting did not happen as distinct successive steps – rather they were performed concurrently as overlapping cycles (Nieuwenhuis, 2011a: 99; Johnson and Christensen, 2008: 389; Creswell, 2007: 150). In this way, the researcher did not wait until all data were 'in' before beginning to analyse them (Ary, Jacobs, Razavieh, & Sorensen, 2006: 454). The analysis of data commenced from the outset of the first principal interview, and continued while working on the research.

4.8 RELIABILITY AND VALIDITY OF RESEARCH

Reliability and validity was ensured by use of multiple methods of data collection and analysis. Reliability refers to the degree of consistency the chosen instrument demonstrates when employed to gather the data for a given study (Leedy & Ormrod, 2005: 29). Guba and Lincoln (1982) stated that while all research must have "truth value", "applicability", "consistency", and "neutrality" in order to be considered worthwhile, the nature of knowledge within the rationalistic (or quantitative) paradigm is different from the knowledge in naturalistic (qualitative) paradigm. Consequently, each paradigm requires paradigm-specific criteria for addressing "rigor" (the term most often used in the rationalistic paradigm) or "trustworthiness", the parallel term for qualitative "rigour".

Denzin and Lincoln (2005: 19) noted that, within the rationalistic paradigm, "the criteria to reach the goal of rigor are internal validity, external validity, reliability and objectivity". On the other hand, they proposed that the criteria in the qualitative paradigm to ensure "trustworthiness" are credibility, fittingness, auditability, and confirmability (Denzin & Lincoln, 2005: 19; Onwuegbuzie & Johnson, 2006: 49). These criteria were refined to credibility, transferability, dependability and confirmability (Denzin & Lincoln, 2005: 20; Cohen *et al.*, 2007: 148). They recommended specific strategies be used to attain trustworthiness such as triangulation, member checks and investigator characteristics.

4.8.1 Strategies for Ensuring Trustworthiness

The following strategies were used to ensure trustworthiness in this study: triangulation, audit trials, member checks, investigator characteristics and verification.

4.8.1.1 Triangulation

Triangulation was previously viewed as employing parallel or otherwise duplicated studies that use different methods to achieve the same purpose, in order to provide corroborating evidence for the conclusions given, that is, as a technique of validation (Shenton, 2004: 65; Buber, Gadner & Richards, 2004: 143). It has been argued that,

in any case, triangulation does not assist validation as each source must be understood on its own terms (Fielding & Fielding, 1986; Flick 1992: 181). The goal of multiple triangulation is a fully grounded interpretive research approach. 'Objective reality will never be captured. In-depth understanding, not validity is sought in any interpretive study' (Denzin, 1989: 246).

The original model of triangulation assumes a single reality and ignores the symbolic interactionist foundation of much qualitative work which proposes that different methods (or researchers or participants) will necessarily view or construe the object of the research in different ways (Buber, Gadner & Richards, 2004: 143). For example, people responding to interviews or open-ended questions may often raise quite different issues to those provided for in a structured questionnaire asking essentially the same question. The use of parallel methods may not provide corroborative evidence, but may well add depth or breadth to a study and perhaps even hold the key to understanding the processes which are occurring (Mark, Feller & Button, 1997: 55).

4.8.1.2 Audit trails

An audit trail is defined as the details in one's research study. These details seek to include "how data were collected, how categories were derived, and how decisions were made throughout the inquiry" (Merriam & Associates, 2002: 27). To provide details about this research, a researcher's journal was used to record reflections, joys, frustrations, questions, and decisions made throughout the study (Shenton, 2004: 68).

The researcher successfully collected data from lecturers with minimum postponements and delays. However, frustrations could not be avoided as two principals could not be interviewed as planned, due to their busy examinations schedules and meetings. Some already planned itinerary had to be revisited and rearranged in order to accommodate realities of disturbances during data collection. This is what Guba and Lincoln (1989) call "progressive subjectivity", or the monitoring of the researcher's own developing constructions, which the writers considered critical in establishing credibility.

4.8.1.3 Member checks

Merriam and Associates (2002: 31) defined member checks as "taking data and tentative interpretation back to people from whom they were derived and asking if they were plausible." Member checking operates on the assumption that "the extent to which members recognise their experiences in research products dictates the reliability of research claims" (Turner & Coen, 2008: 185).

From a more authentic qualitative research perspective:

> when conceptualised as a tool for the further acquisition of relevant data and when incorporated within critically reflexive strategies…, member checking can serve to uphold and extend robust analyses in valuable ways not limited to traditional notions of validation. Indeed, credible results of member checking may actually go against informant agreement with researcher accounts (Turner & Coen, 2008: 185).

In this study, the researcher did not take the findings back to participants for tentative interpretation of this research as Guba and Lincoln (1982: 241) warned against the tendency to define verification in terms of whether readers, participants, or potential users of the research judge the analysis to be correct, stating that it is actually more often a threat to validity.

4.8.1.4 Investigator characteristics

The researcher should be responsive and adaptable to changing circumstances during the research process, being holistic, sensitive, and able to clarify and summarise data (Shenton, 2004: 68; Guba & Lincoln, 1982: 245). The quality of research is only as good as the quality of the investigator. The researcher's creativity, sensitivity, flexibility and skill in using the verification strategies determine the reliability and validity of the study (Morse, *et al.,* 2002: 10). According to Patton (2002), the credibility of the researcher is especially important in qualitative research because it is the investigator who is the major instrument of data collection and analysis. For example, in this concurrent mixed methods research, the researcher

analysed the data from both quantitative and qualitative data collection techniques before merging or integrating the overall analysis.

McMillan and Schumacher (2006: 401) argued that the researcher needs to be proficient and competent in both qualitative and quantitative methods. Teddlie and Tashakkori (2003: 45) referred to the need for mixed methods researchers to be 'methodologically bilingual,' that is, having the skill to use both quantitative and qualitative research methods. Cameron (2011: 263) called for the need to teach for "methodological trilingualism" in future mixed method researchers:

> Not only do they need strong grounding in their chosen quantitative and qualitative methodologies and associated paradigms but they also need to be cognisant, knowledgeable and fluent in the theoretical foundations of mixed methods, the specific mixed method methodological issues (research designs and typologies, mixed methods sampling, data priority, implementation and integration,) and the quality frameworks that have been developed for mixed methods.

Therefore, it is essential that the investigator be open-minded, sensitive, creative and having insight, and be willing to let go any poorly supported ideas even though they may seem attractive at first. It is these investigator qualities or actions that produce social inquiry and are crucial to the attainment of optimal reliability and validity (Morse, *et al.*, 2002: 10). Lacking investigator responsiveness throughout the whole research process poses the greatest threat to validity and one that is poorly noticed using *post hoc* criteria of "trustworthiness." (Morse, *et al.*, 2002: 10).

4.8.1.5 Verification strategies

Within the conduct of inquiry itself, verification strategies that ensure both reliability and validity of data include ensuring coherence in methods used, sampling sufficiency, data collection and analysis, and development of theory (Morse, *et al.,* 2002: 11). Each of these is discussed briefly below.

First, the aim of achieving coherence in methods used is to ensure congruence between the research question and the components of the method. The

interdependence of qualitative research demands that the question matches the method, which matches the data and the analytic procedures (Morse, *et al.*, 2002: 11). As the research proceeds, the process may not follow a linear path. Data may demand to be treated differently so that the question or methods may need modification. Sampling plans may be expanded or change course altogether. These components should fit the data in order for the analytic goals to be coherent, with each verifying the previous component and the methodological assumptions as a whole (Morse, *et al.,* 2002: 11).

Second, the sample must be appropriate, consisting of respondents who have knowledge of the research topic. "This ensures efficient and effective saturation of categories, with optimal quality data and minimum dross" (Morse, *et al.,* 2002: 12). "Sampling adequacy, evidenced by saturation and replication, means that sufficient data to account for all aspects of the phenomenon have been obtained" (Morse, *et al.,* 2002: 12). In this research, both quantitative and qualitative samples were adequate as they had experience in the effectiveness of polytechnic curriculum implementation.

One of the most common mistakes which this research avoided was to repeatedly interview the same participants until nothing new emerged. "Rather, data should be saturated by continuously bringing new participants into the study until the data set is complete" (Morse, *et al.*, 2002: 12). Returning to interview polytechnic principals for a second or third time is oriented toward eliciting data to expand the depth or address gaps in the emerging analysis while interviewing additional principals is for the purpose of increasing the scope, adequacy and appropriateness of the data (Morse, *et al.*, 2002: 12). In this study, adequate time was spent interviewing key informants to the extent that it was not necessary to continue going back repeatedly.

Third, collecting and analysing data at the same time or concurrently forms a mutual interaction between what is known in literature and what is not yet known. This iterative interaction between data collection and analysis brings about reliability and validity (Morse, *et al.*, 2002: 12). The fourth aspect is thinking theoretically. This occurs when new ideas are generated from the emerging ideas, resulting in reconfirmation and verification in the data already collected. According to Morse, *et*

al. (2002: 12), thinking theoretically "requires macro-micro perspectives, inching forward without making cognitive leaps, constantly checking and rechecking, and building a solid foundation." It was thinking theoretically that prompted the researcher to produce a model that would be used to improve the effective implementation of PCS.

Lastly, the aspect of theory development moves between a micro (lower level) perspective of the data and a macro (higher levels) conceptual or theoretical understanding. This means that building of a theory occurs at a lower level, such as at sub-problem level to higher levels where such findings may be generalised to similar settings. In this way, theory is developed through two mechanisms: (1) as an outcome of the research process, rather than being adapted as a framework to move the analysis along; and (2) as a template or blueprint for comparison and further development of the theory (Morse, *et al.,* 2002: 12). Polytechnic principals' views from this research may be used to build principles that would form a basis for a robust model on how effective curriculum implementation strategy could be infused with strategic leadership. Valid and reliable theories are well developed, comprehensive, logical, and parsimonious (Morse *ibid.*). This study aimed at developing a model that would facilitate effective implementation of PCS.

Reliability and validity of qualitative designs focus on credibility, transferability, dependability and confirmability (Denzin & Lincoln, 2005: 20; Cohen, *et al.*, 2007: 148). Credibility is concerned with the congruency between social reality as viewed by the participants and the way the researcher explains his or her views. In this study, triangulation of data collection methods was employed to ensure credibility.

Transferability refers to the applicability of results to other settings (Merriam, 1998; Shenton, 2004: 69). Thus, transferability may be ascertained by presenting sufficient descriptive data for ease of comparison by other researchers. In this project, external validity was ensured by providing rich, thick description of data so that those interested in transferability had a solid framework for comparison (Merriam in Creswell, 1994: 168).

Dependability is a qualitative parallel of reliability or stability over time (Denzin & Lincoln, 2005: 20).The process here is analogous to transferability where a detailed description of the sample, sampling procedures, data collection and analysis was substantiated so that other researchers can replicate the study.

Mertens (2010: 232) explains that confirmability can be verified by the neutrality of the gathered data. This implies that as far as possible, the findings should be based on the experiences and ideas of the informants, rather than the characteristics and preferences of the researcher (Shenton, 2004: 72). This is referred to as a chain of evidence. In this research, confirmability was ensured by discussing the results with other experienced researchers in the field of educational management.

4.9 ETHICAL CONSIDERATIONS

The term ethics is derived from the Greek word ethos, meaning character (Alvino, 2003: 896). To engage with the ethical dimensions of one's research requires asking oneself important questions, such as, 'What moral principles guide one's research? How do ethical issues affect how one conducts one's research? (Alvino, 2003: 896). Neuman (2006: 129) defines ethics as what is or what is not legitimate to do, or what 'moral' research procedure involves. Ethical issues are concerns, dilemmas, and conflicts that arise over the proper way of conducting research. Ethical principles in research imply a set of standards that guide researchers on how they should interact with research participants. Ethical standards are observed in rights to consent, privacy, anonymity and confidentiality. These rights were well explained to the respondents before they answered the questionnaire or responded to the interview questions. Before the use of data collection instruments such as tape recorders, respondents' permission was sought.

Care was taken to ensure that the triangulation analysis was ethically sound and as far as possible, it was not biased due to preconceived ideas of the researcher. To ensure that this occurred, names of polytechnic principals and lecturers participating in the research were not identified: 'This means maintaining each participant's dignity, privacy, and confidentiality by not disclosing data to other participants in that organisation' (McMurray, Wayne & Scott, 2004: 236).

According to Knowles and Sweetman (2004: 12), "the problem of ascribing anonymity or confidentiality to research subjects who have been photographed" is among the "more mundane considerations" that this approach requires researchers to address, but the fact that these are routine matters should not lead to their being treated as unimportant. According to Bourdieu (1999: 1), participants can be protected "by changing the names of places and individuals to prevent identification…. and to protect them, from the dangers of misinterpretation".

The risk of the anonymisation process in research being compromised can be reduced by the exclusion of visual material from research reports, or by the inclusion of visual material in which no research participants figure (Crow & Wiles, 2008: 3). Anonymity exists when participants – and the information they have shared – cannot be identified. Noone, including the evaluator or researcher, knows which response came from which participant andno records exist to connect participants with their responses (ACET, 2013: 1). An implication of anonymity is that keepingparticipants' information anonymous and/or confidential is one way to ensure that their responses are accurate.

By contrast, confidentiality exists when participants and the information they share could be identified, but their identity is protected. Under conditions of confidentiality, researchers know which participant said what, but they do not identify participants' comments to protect participants' identity (ACET, 2013: 1). It was possible to identify which principal has said what though but no identification of their comments was made.

4.10 CHAPTER SUMMARY

This chapter focused on concurrent mixed methods study designed to examine the relationship between the strategic leadership capacities of principals and effective implementation of polytechnic curriculum. The quantitative portion was based on results of a survey that measured the extent to which principals of polytechnics effectively implement their curricula. Senior lecturers, selected company training managers and Higher National diploma students responded to three questionnaires. Factor analysis was used to validate the questionnaires used in the study.

The qualitative portion of the design included interviews and open-ended questions with the researcher that further clarified and deepened their responses to the survey questions. The information from the interviews was compared and contrasted with the survey results. The next chapter focuses on data presentation, analysis and discussions.

CHAPTER 5

DATA PRESENTATION, ANALYSIS AND DISCUSSIONS

5.1 INTRODUCTION

This chapter presents the analysis of the quantitative data from the quantitative phase of the concurrent mixed methods research design described in Chapter 4 as well as the qualitative data collected from interviews. The purpose of conducting the mixed-methods study was to examine the principals' role in the implementation of polytechnic curriculum strategy (PCS). The main question this study seeks to answer is, "What is the role played by strategic leadership in the implementation of polytechnic curriculum strategy?" (cf. 1.4).

The study began with a survey instrument that included demographic and questions about PCS. To seek greater depth than that provided by survey responses, polytechnic principals were interviewed using an interview schedule derived from the first four research questions (cf. 1.4.2) and the data were presented as qualitative data. The qualitative data also provided more insights to answer the 'how' and 'why' aspects of the other research questions than quantitative data alone could have provided. The first part of this chapter is arranged around the research questions. The second part presents the qualitative data from principal interviews that supported the survey data. The last contains the researcher's summary of the data.

5.2 RESPONSE RATES

A response rate is defined as the proportion or percentage of individuals such as patients, practices, colleges selected into a sample who finally participate in the survey (Johnson & Wislar, 2012: 1805). Response rates act as a standard for evaluating the quality of a survey under the premise that a higher response rate will produce findings that are more representative and can be generalised to the population of interest (*ibid.*).

Generally, "there is no scientifically proven minimally acceptable response rate. A response rate of 60% has been used as the threshold of acceptability by some and has face validity as a measure of survey quality" (Johnson & Wislar, *ibid.*). For

survey research intended to represent the whole population, a response rate of ± 80% is expected and acceptable (Fincham, 2008: 43).

Table 5.1: Response rates

Sample	Sample size	Responses	% Response rate
Principals	5	5	100
Lecturers	150	123	82
Students	100	77	77
Training managers	12	9	75

All the response rates shown in the table above range from 75% to 100%, depicting an acceptable range of response rate of above a threshold of 60%.

5.3 ANALYSIS OF QUANTITATIVE DATA

To analyse the quantitative data and answer four of the research questions, a variety of statistical analyses were conducted including: descriptive statistics and factor analysis. Using SPSS version 20.0, the quantitative data were first prepared through the screening and cleansing process (Pallant, 2007: 8) in order to ensure accurate analysis. The survey data were analysed through the descriptive statistical process to check for missing data. Questionnaires returned missing more than two values, were excluded from the study. Originally, 125 completed questionnaires were collected from lecturer respondents with 2 excluded due to missing more than two values within the survey leaving 123 complete and usable cases.

5.3.1 Demographics of lecturers

Table 5.2: Lecturers by age in years

Age group	Frequency	Percent	Cumulative Percent
Below 30 years	19	15.4	15.4
30 – 34 years	39	31.7	47.2
35 – 39 years	21	17.1	64.2
40 – 44 years	20	16.3	80.5
Over 45 years	24	19.5	100.0
Total	123	100.0	

Descriptive statistics representing the variable for age of the survey respondents show that of the 123 survey lecturers, a majority (31.7%), were between the ages of 30 – 34 with the second highest category of respondents being between the ages of 35 – 39 years of age (17.1 %). The cumulative percent after combining three age categories (below 30 years, 30 – 34 and 35 – 39) represents 64.2 % of the respondents surveyed. This demographic data is relevant as the cumulative percentage of lecturers between 30 and 39 is 64%, depicting an active age range that can implement PCS effectively.

Table 5.3: Lecturers by gender, work experience and status

Gender	Work Experience				
	1 – 2 years	3 – 4 years	5 – 7 years	8 – 10 years	Total
Male Lecturer	7	18	24	4	53
Lecturer in Charge	3	6	4	7	20
Head of Department	0	0	5	4	9
Head of Division	0	0	1	1	2
Female Lecturer	4	6	13	3	26
Lecturer in Charge	1	1	2	3	7
Head of Department	0	1	3	1	5
Head of Division	0	0	1	0	1
Total	15	32	53	23	123

The majority of the polytechnic lecturers (84 out of 123 (68%) were male while female lecturers constituted 32% (39 out of 123). Thirty-one male lecturers (25%) were in management (lecturer in charge, head of department or head of division) and 13 female lecturers (11 %) were in management. From the data, a majority of the lecturers in this study (n=53 or 43%) indicated that they had taught between five and seven years. This means 57% of the lecturers reported that they had taught less

than five years. In addition, 32 lecturers (26 %) reported that they had taught between 3 to 4 years while 23 (18.6%) reported to have taught from 8 to 10 years respectively. Indicate the significance. More lecturers (57% + 26% = 83%) have taught up to 4 years or less, depicting a distribution of lecturers who are not very experiences in implementing the PCS. Only a small percentage of 18.6% have lecturing experience of more than 8 years. This, to some extent, compromised the quality of implementing the PCS.

Table 5.4: Polytechnic lecturers by qualification

Qualification	Frequency	Percent	Cumulative Percent
National Certificate	9	7.32	7.3
National diploma	43	35.0	42.3
Higher National diploma	11	8.94	51.24
Bachelors Degree	49	39.83	91.07
Masters degree	11	8.94	100.0
Total	123	100.0	

Table 5.4 shows that most lecturers 49 (39.8%) possessed bachelor's degrees of one qualification or another. This is quite acceptable as the highest qualification offered in polytechnics is a higher national diploma. The second highest qualification is the national diploma with 43 (35%) of all the lecturers that responded to the questionnaire. Although such type of lowly qualified lecturers would be solely confined to teaching only national certificate students, this is likely to compromise the quality of instruction delivered.

One interesting scenario is that 9 (7.3%) lecturers indicated that they were national certificate holders but teaching students in the national certificate programmes. One wonders what the quality of interaction between lecturers and their students is during teaching that ensues, considering that both are at the same level of qualification. This is not consistent with the goal of striving for excellence practices and best (Section 3.6.4.5) where polytechnics should continuously benchmark against other similar institutions (Thompson & Strickland, 2010: 362). Though 11 (8.9%) lecturers who responded to the polytechnic lecturer questionnaire indicated that they

possessed master's degrees, this is too insignificant to be meaningful in contributing to effective PCS implementation.

5.3.2 Descriptive statistics for lecturers

This section analysed quantitative data for lecturers using descriptive statistics, such as mean and standard deviation. A mean threshold of plus or minus 2.5 was used as a decision point (George & Mallery, 2003: 15). A mean of say 2.1 would mean that most respondents did not agree with the view put across by the researcher and another one of say 2.8 would mean that the majority of participants agreed with the view. The main question that underpinned each of the questions in this section of the questionnaire was, '*How effective are polytechnic principals in executing their roles that contribute towards effective implementation of polytechnic curriculum strategies?*' The responses of the lecturers are summarised in Table 5.4 below.

Table 5.5: Descriptive statistics for principals' roles

Variable		Mean	Std. Deviation
Upgrading skills of lecturers in line with changing industry needs.		2.06	1.195
Facilitating staff development programmes for lecturers.		2.09	1.132
Incentivising lecturers to improve performance.		2.16	1.173
Organising of resources for instructional delivery.		2.37	1.363
Initiating curriculum development reviews in line with industry needs.		2.44	1.462
Supervising lecturers on academic issues, e. g. planning, scheming, quality of practical assignments, etc.		2.56	1.472
Communicating with all departments effectively though memos and meetings on curriculum issues.		2.63	1.517
Attending to Human Resources issues that affect lecturers, e. g. taking of vacation leave.		2.69	1.449

Valid N (listwise)

It is evident from Table 5.5 where five out of the eight items ranked below the decision point of 2.5, that the respondents are generally of the opinion that principals'

roles do not contribute to the effective implementation of polytechnic curriculum strategy. The items that fall below 2.5 require interrogation. The item 'Upgrading skills of lecturers in line with changing industry needs', obtained the lowest mean score of 2.06 indicating that most of the lecturers disagreed that principals were effective in upgrading skills of lecturers in line with changing industry needs. The other low scores related to staff development and incentivisation, utilisation of resources and initiation of curriculum development reviews. These have been highlighted in earlier chapters as important factors in strategy implementation. Therefore it is clear, in the lecturers' opinion, that principals are not demonstrating strategic skills. The three items above mean of 2.5 indicate that the principals have acceptable administrative skills perhaps indicating that to some extent, principals have leadership skills beyond "armchair" leadership (Cf. 3.4; 3.7 and 3.11).

Table 5.6: Descriptive statistics for strategic leadership capacities

Variables	Mean	Std. Deviation
Implementation of properly designed worker incentives	2.08	1.115
Creating a competitive advantage over similar colleges in attracting staff members	2.32	1.391
Development of structures, processes and controls for the organization	2.33	1.411
Strategic direction in polytechnic curriculum implementation	2.35	1.293
Allocation of instructional and industrial attachment resources	2.36	1.226
Human capital development	2.41	1.261
Effectiveness of HEXCO internal and external assessment	2.48	1.284
External environment and curriculum implementation	2.65	1.324
Implementation of curriculum, change and innovation	2.69	1.415
Social capital development	2.99	1.492

Valid N (listwise)

N=123

It is evident from Table 5.6 that most of the respondents were of the opinion that strategic leadership capacities of principals did not contribute effectively to the effective implementation of polytechnic curriculum strategy. Mean scores for only 3 items exceed 2.5. The scores largely corroborate the findings in Table 5.4 with staffing issues (development, incentivisation) and resource management being highlighted in addition to development of structures, processes and controls for the organisation and providing strategic direction.

The item 'social capital development' obtained the highest mean score of 2.99 indicating that most of the lecturers agreed that principals were effective in developing social capital in polytechnics. Social capital involves relationships inside and outside the organisation that helps it to accomplish tasks and create value for customers and shareholders (Adler & Kwon, 2002: 20). This is an important strategic skill but if it does not impact the internal process of human capital development which scored only 2.41, then there is a disconnect somewhere in the implementation of strategy. This could be related to the development of vision and mission statements which were shown to be crucial to strategic success (cf. 3.5.1; 3.5.2 and 3.7).

Table 5.7: Descriptive statistics for challenges to PCS implementation

Variable	Mean	Std Deviation
The curriculum strategy is not effectively communicated to lecturers	2.05	1.240
Inability to manage change effectively in curriculum implementation	2.06	1.237
Evaluation of the implementation of polytechnic curriculum strategy	2.10	1.217
Staff members are not well motivated	2.15	1.285
Ethical practices are not well enforced in curriculum implementation	2.16	1.283
Lack of alignment between culture and curriculum Implementation	2.21	1.269
Core competencies are not aligned with curriculum strategy	2.31	1.281
Staff members do not understand the curriculum strategy	2.46	1.351
Strategies are poorly or vaguely formulated	2.51	1.325
The principal is limited in providing strategic direction to the institution	2.52	1.422
Scarce resources inhibit effective curriculum Implementation	2.74	1.430

This part of the questionnaire was phrased "negatively". Table 5.7 indicates that most of the respondents agreed that PCS implementation was hindered by scarce resources but perhaps more significantly by poor strategic formulation and limited strategic direction provided by principals. These results support the findings evident in Tables 5.5 and 5.6.

An organisation's ability to marshal the resources to support new strategic initiatives and steer them to the appropriate organisational units has a major impact on the strategy execution process (Thompson, Strickland & Gamble, 2010: 358). The finding on this item indicates that principals found it very difficult to implement PCS with very few resources.

Table 5.8: Descriptive statistics for implementation of PCS

Variable	Mean	Std Deviation
Structure of the polytechnic	1.96	1.169
Training and development in the polytechnic	2.00	1.241
Performance management system in the polytechnic	2.10	1.090
Strategic leadership in the polytechnic	2.11	1.125
The culture of polytechnic	2.16	1.190
Allocation of resources in the polytechnic	2.23	1.247
Information systems in the polytechnic	2.28	1.258

Valid N (listwise)

N=123

Table 5.8 indicates mean scores for all the 7 items do not exceed 2.5 with the scores that range from as low as 2.00 to 2.28. The item, '*Allocation of resources in the polytechnic*' obtained the mean score of 2.23 (second highest), and the responses of lecturers on the availability of resources is rather consistent across all sections of the questionnaire indicating that resources are not ideally available for the smooth running of polytechnics. Only one principal differed in this response when he said that resources have not been much of a problem even though in 2013 his institution did not receive any budgetary support from the fiscus.

A mean score of 2.28 (though highest in this section) for the item '*Information systems in the polytechnic,*' indicate that lecturers felt that a lot should be done to upgrade the information systems at polytechnics to support effective curriculum implementation. At the time of the study lecturers did not have laptops or even desktop computers to use in the delivery of lesson using common delivery packages of Microsoft PowerPoint, for example. Thompson*, et al.* (2010: 371) explain that the "state-of-the-art support systems can be a basis for competitive advantage if they give an organisation, capabilities that rivals cannot match" (cf. 2.3.6).

Table 5.9: Descriptive statistics for measuring polytechnic curriculum standards

Variable	Mean	Std Deviation
Curriculum Research and Development Unit (CRADU) articulates curricula standards very well.	2.02	1.287
Industrial attachment is well supervised.	2.06	1.269
Industrial Training and Trade Testing (ITTD) also evaluates polytechnic curricula.	2.27	1.319
National Manpower Advisory Council (NAMACO) evaluates polytechnic curricula.	2.45	1.351
Practical assignments are not well constructed to reflect the TVETISATION thrust.	2.47	1.445
There is emphasis on theoretical assignments.	2.76	1.426

Valid N (listwise)

N=123

Table 5.9 indicates that most of the lecturers disagreed that polytechnic curriculum standards were effective in measuring PCS implementation as 5 out 6 descriptors lay below the mean threshold of 2.5. The item, *'Articulation of standards by the* Curriculum Research and Development Unit (CRADU*)'* obtained the mean score of 2.02 indicating that standards by CRADU were not well articulated. One principal remarked that:

> *These standards are not effective at all. Take for example, in 2013, from January to April, polytechnics had started implementing the modular*

fashion where CRADU *competences and standards were implemented. End of April we were told to revert to the old system of subjects. On the 16th of October 2013, a new mark sheet was unveiled with three field visits per subjects that should have been done by each student. Here there is no consistency in implementing standards throughout the year.*

A mean score of 2.47 for the item *'Practical assignments are not well constructed to reflect the TVETISATION thrust'* indicate that lecturers agreed that lecturers are not competent in constructing practical assignments. Another principal commented that:

These standards are not very effective because the emphasis on 30% practical assignments is not well achieved as many lecturers lack the pedagogical skills to craft real practical assignments. Due to incompetence, they end up with theory assignments that are labelled practical assignments.

A mean score of 2.76 for the item, '*There is emphasis on theoretical assignments*,' indicate that most lecturers agreed that there was emphasis on theoretical assignments at the expense of the psychomotor domain. There is consensus on lecturers' views [when they observed] that practical assignments are paid lip service as emphasis is placed on theory.

Table 5.10: Descriptive statistics for polytechnic lecturer questionnaire

Dimension	Mean	Std deviation
Implementation of polytechnic curriculum strategy (E)	2.12	1.189
Challenges faced by polytechnics in curriculum strategy implementation (D)	2.29	1.277
Standards for measuring polytechnic curriculum implementation (F)	2.33	1.366
Strategic leadership capacities (C)	2.47	1.369
Principals' roles (B)	2.60	1.274

N=123

Table 5.10 shows a summary of descriptive statistics with only lecturers agreeing that principals were able to execute their roles effectively as indicated by a mean of 2.6 which is slightly above the threshold of 2.5. The rest of the sections of the questionnaire depicted means of less than 2.5. Most lecturers disagreed (mean, 2.12) that PCS was effectively implemented. One of the reasons was scarcity of resources.

5.3.3 Reliability and validity of the polytechnic questionnaire

The lecturer questionnaire used in this study was subjected to validity and reliability assessments. Factor analysis was used to assess its internal validity while Cronbach's Alpha was used to assess its internal reliability. Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was used to assess the suitability of the lecturer data for factor analysis. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is the sum of all the squared correlation coefficients in the numerator and the denominator is the sum of all the squared correlation coefficients plus the sum of all the squared partial correlation coefficients (Norusis, 2003: 15).

The KMO index ranges from 0 to 1, with 0.50 considered suitable for factor analysis (Hair*, et al.*, 1995: 366; Tabachnick & Fidell, 2007: 140). A KMO statistic greater than 0.7 indicates that adequate correlation exists to justify factor analysis (Hair*, et al.*, 1998: 99; Schwarz, 2011: 26).

Table 5.11: Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy statistics

Section	Dimension	KMO Statistic	Cumulative % of variance explained
B	Principals' roles (8 items)	0.718	50.984
C	Strategic leadership capacities (10 items)	0.870	68.189
D	Challenges to curriculum strategy (11 items)	0.835	60.251
E	Implementation of curriculum strategy (7 items)	0.848	60.097
F	Standards for measuring curriculum strategy (6 items)	0.688	38.014

Table 5.11 indicates each of the identified factors (dimensions) and their respective factors loadings. A factor loading is a quantity that results from the factor analysis and indicates the relationship between a variable and a factor (Schwarz, 2011: 26). Items with a loading of less than 0.3 indicate a weak relationship and should be removed or eliminated (Field, 2000: 436, 437).

Table 5.12: Factor analyses of the polytechnic lecturer questionnaire

Statement	F1	F2	F3	F4	F5	Statement	F1	F2	F3	F4	F5
B1	.371					D4			.492		
B2	.497					D5			.671		
B3	.578					**D6**			.552		
B4	.429					D7			.595		
B5	.654					D8			.690		
B6	.280					D9			.710		
B7	.780					D10			.559		
B8	.489					D11			.484		
C1		.623				E1				.512	
C2		.669				E2				.598	
C3		.737				**E3**				.650	
C4		.556				E4				.599	
C5		.731				E5				.652	
C6		.639				E6				.600	
C7		.703				E7				.595	
C8		.730				F1					.057
C9		.749				F2					.416
C10		.678				F3					.191
D1			.562			F4					.575
D2			.775			F5					.517
D3			.537			F6					.525

In Table 5.12, factors F1 and F3 had factor loadings of 0.057 and 0.191 respectively. These factor loadings indicate a weak relationship and should be eliminated from the

questionnaire. The rest of the factors indicate factor loadings of more than 0.3 and can be retained.

5.3.3.1 Factor 1: Principals' roles

The aim of section B of the questionnaire was to measure the effectiveness of the principal roles in the implementation of polytechnic curriculum strategy. The KMO was 0.718 for this section. Section 4.7.1.2.1 indicates that KMO should be 0.60 or higher in order to proceed with a factor analysis (Schwarz, 2011: 26). Exploratory factor analysis was performed on items B1 – B8. Eight factors were reduced to two factors which had a total of 50.984% of the variance explained. Table 5.11 indicates the different loadings of the factors.

5.3.3.2 Factor 2: Strategic leadership capacities

Section C of the polytechnic lecturer questionnaire with 10 items measured the strategic leadership capacities of principals. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was conducted on the items of section C and yielded a statistic of 0.870. The KMO was greater than 0.6 and this indicated acceptability of proceeding with factor analysis. Two items were reduced to one factor explaining 68.189 % of the variance.

5.3.3.3 Factor 3: Challenges to polytechnic curriculum strategy implementation

Section D of the polytechnic lecturer questionnaire with 11 items measured the challenges to polytechnic curriculum strategy implementation. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was conducted on the items of section D and yielded a statistic of 0.835, which was greater than 0.6 indicating that this section was suitable for factor analysis. Two items were reduced to one factor explaining 60.251% of the variance.

5.3.3.4 Factor 4: Implementation of curriculum strategy

Section E of the polytechnic lecturer questionnaire with 7 items measured the challenges to PCS implementation. The Kaiser-Meyer-Olkin measure of sampling

adequacy (KMO) was conducted on the items of section E and yielded a statistic of 0.848. Seven items were reduced to one factor explaining 60.097% of the variance.

5.3.3.5 Factor 5: Standards for measuring curriculum strategy

Section F of the polytechnic lecturer questionnaire with 6 items measured the challenges to polytechnic curriculum strategy implementation. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was conducted on the items of section F and yielded a statistic of 0.688. Six items were reduced to one factor explaining 38.014% of the variance.

5.3.4 Internal Reliability

Cronbach's Alpha coefficient is a statistical measure for the internal reliability of the items or variables underlying an identified factor in the questionnaire. Coefficient Alpha is a good indicator of the internal correlation that exists between a set of items or variables (Churchill, 1992: 390). If this coefficient is lower than 0.7, it implies that some items do not relate to the factor (Hair*, et al.*, 1995: 618). Such items should be eliminated from the factor. Values of the coefficient Alpha range from no reliability (0) to perfect reliability of 1.

The closer the Cronbach's alpha coefficient is to 1.0 the greater the internal consistency of the items on the scale. Reliability was also measured for each of the five categories of polytechnic lecturer questionnaire. These categories were principals' roles, strategic leadership capacities, challenges to PCS implementation, implementation of PCS, and standards for measuring PCS, which ranged from acceptable (0.614) to high (0.898). Table 5.12 indicates the reliability coefficients for the polytechnic lecturer questionnaire.

Table 5.13: Polytechnic lecturer survey alpha reliability results

Variable	Number of items	Alpha
Principals' roles	8	.708
Strategic leadership capacities	10	.898
Challenges to polytechnic curriculum strategy	11	.833
Implementation of polytechnic curriculum strategy	7	.888
Polytechnic curriculum standards	6	.699

It is evident from Table 5.13 that Cronbach's Alpha for most of the identified factors is above or at the lower acceptable limit of 0.70, showing that there was high internal consistency of the items in the 42 polytechnic lecturer item-scale. Generally, the results show that the instrument (sections B, C, D, E and F) used in this research had an acceptable level of reliability.

5.3.5 ANALYSIS OF COMPANY TRAINING MANAGER (CTM) DATA

This section analyses the quantitative data from the CTM questionnaire. Demographics for company training managers and the descriptive statistics (mean and standard deviation) were used to analyse the data.

5.3.5.1 Demographics of the company training managers

This section presents data of the responses of the company training managers in the form of frequency tables and descriptive statistics such as mean and standards deviation.

Table 5.14: Company training manager respondents by gender

Gender	Frequency	Frequency percent	Cumulative percent
Male	8	88.9	88.9
Female	1	11.1	100.0
Total	9	100.0	

Table 5.14 above shows the distribution of company training managers by gender. Out of the 9 respondents, only one of them is female indicating that in industries, female training managers are still scarce despite government efforts to address

gender disparities at the work place. Gender disparities in the distribution of training managers in industries may impact negatively on the quality of PCS implementation since industries that are male dominated might exhibit patriarchal attitudes towards female polytechnic students on industrial attachment. According to Tracy (2007: 576), patriarchy refers to 'male rule' and hence 'male authority' and describes a very broad continuum of gender role models in which males have some type of gender based authority over females.

Table 5.15: Company training manager respondents by age

Variables	Frequency	Percent	Valid percent	Cumulative Percent
Younger than 30 years	3	33.3	33.3	33.3
36-39 years	1	11.1	11.1	44.4
40-45 years	1	11.1	11.1	55.6
46 -50 years	2	22.2	22.2	77.8
50 -54 years	1	11.1	11.1	88.9
55^+ years	1	11.1	11.1	100.0
Total	9	100.0	100.0	

Table 5.15 above shows that training managers who were younger than 30 years of age constitute 3 out of 9 or 33% of the company training managers who responded to the questionnaire. The rest of training managers (67%) were older than 30 years depicting that most of the training managers are mature in dealing with polytechnic students on industrial attachment. This was supported by Kearney (2008: 805) who observed that "with an older leader, the team may be more open to a leader's transformational behaviours, because the team members may be more accepting of the leader's special status."

Table 5.16: Company training managers by qualification and job experience

Qualification	Job experience			Total	Percent
	0 -5 years	6 -10 years	15^+ years		
National Diploma	0	1	1	2	22.2
Higher National Diploma	3	1	0	4	44.4
Bachelors Degree	0	1	2	3	33.3
Total	3	3	3	9	100

Table 5.16 depicts a situation where company training managers are distributed evenly across the three levels of job experience with each category having 3 training managers. Overall, higher diploma holders constituted the highest frequency with 4 out of 9 or 44.4%, followed by degree holders with one third or 33.3% of the respondents. Generally, most training managers need to upgrade their training qualifications to degree level, since they are responsible for identifying training needs and organising training programmes to close skills gap in industry. In this regard, Gauld and Miller (2004: 16) asserted that trainers, who were formally qualified as a trainer, identified with the competencies that are deemed as contributing to trainer effectiveness, as opposed to trainers who did not have a formal, University qualification to teach. Bernstein, Goldbeck, Hillix and Marx, cited in Gauld and Miller, (2004: 6) concur when they argue that competencies of trainers in the area of problem solving techniques also produce effective results for learners to enhance their ability to locate and solve problems.

5.3.5.2 Company training manager descriptive statistics

This section analysed quantitative data for company training managers using descriptive statistics such as mean and standard deviation. As has been alluded to in section 5.2.2, a mean threshold of plus or minus 2.5 was used as a decision point. A mean of say 1.9 would mean that most respondents did not agree with a view put across by the researcher, and another one of say 2.7 would mean that the majority of participants agreed with the view.

Table 5.17: Company training manager descriptive statistics

Variable	Mean	Standard Deviation
1. Students are punctual at their respective work places.	1.22	.441
2. Students interact well with their superiors.		
3. Students' rate of absenteeism is quite acceptable.	1.78	.833
4. Students' rate of making mistakes is acceptably low.	2.89	1.833
5. Students deal with customers professionally.	2.56	1.667
6. Students' practical knowledge of the job is acceptable.	3.33	1.118
7. Students use the correct jargon at the work place.	3.67	.707
8.Students seek advice in areas they are not competent in.		
	3.56	1.509
	1.56	.527

Several interpretations can be drawn from Table 5.17. Students were very weak in items 1, 2 and 8. This is because the means of these items are far below the

acceptable threshold of 2.5 (1.22, 1.78 and 1.56 respectively). This showed weak areas of polytechnic curriculum implementation in moulding a competent graduate as seen in the eyes of industry. Although students scored highly in their practical knowledge of the job (mean 3.56), most presenters at NAMACO stakeholders' conference disagreed with the sample of these training managers (Mugoni, 2013: 9). NAMACO presenters argued that most students in most trades lacked the requisite skills needed by industry. This observation took place in the first week of December 2013 during the NAMACO stakeholders' conference in Harare. In a similar study, Fredreck and Bvekerwa (2012: 985) found out that supervision and assessment of industrial attachment was not competency-based. The further argue that authentic assessment of students on industrial attachment only takes place where the student is attached at credible organisations and is exposed practically to the broad categories of the specific field of study (Jonnaert, Masciotra, Barrette & Mane, 2007: 193). From the above finding, one can deduce that students were attached to organisations where they were not exposed to practical experiences of the field of work for reasons best known to that educational institution.

5.3.6 ANALYSIS OF STUDENT DATA

This section analyses the quantitative data from the student questionnaire. Demographics for students and the descriptive statistics (mean and standard deviation) were used to analyse the data.

5.3.6.1 Demographics for students

Table 5.18: Student age in years

	Frequency	Percent	Valid percent	Cumulative percent
< 20 years	3	3.9	3.9	3.9
20-25 years	38	49.4	49.4	53.2
26-30 years	19	24.7	24.7	77.9
30> years	17	22.1	22.1	100.0
Total	77	100.0	100.0	

Most students (38 out of 77 or 49%) were in the 20-25 years age category with very few (3 out of 77 or 3.9%) being younger than 20 years. Seventeen out of seventy-seven or 22% were students older than 30 years. This is a mature group of students

who find it rather difficult to balance social life and academic work because of many family responsibilities. Generally, the age distribution showed relatively younger population of polytechnic students. This age distribution is ideal for polytechnic students as acquiring of skills in colleges need energetic young people who can cope with the rigors of training. This was supported by Blimling (2010: 136) who argue that the physical development patterns of college students relates to their energy levels as physical maturity progresses.

Table 5.19: Student respondents by gender and apprentice training

Variable	Type of training		Total	Percent
	Apprentice Percent	Direct Percent		
Male	34 44.2	2228.6	56	72.7
Female	5 6.5	1620.8	21	27.3
Total	39 50.6	3849.4	77	100.0

Table 5.19 shows more male students (56 out of 77 or 73%) were enrolled in polytechnics as compared to their female counterparts (21 out of 77 or 27%). It is worrying that even in the 21st Century most female students still fail to enter tertiary education especially in engineering fields. The trend is also similar to Canadian colleges (The Association of Universities & Colleges of Canada, 2011: 14), where in 2008, female students constituted the minority in the combined disciples of mathematics, computer and information sciences where they represented 26 percent of students, and architecture, engineering and related technologies where female students represented 20 percent of students. In this study, in terms of the mode of training, a large percentage of male students (44%) was under apprentice training while 29% were direct students who were enrolled without any apprentice training.

Only 6.5% were female students who were under apprenticeship training indicating their level of resilience in penetrating the "men's world" of tertiary education, especially the vocational-technical sector. Since 2004, the researcher observes the trend that most engineering heads of departments were not keen to enroll many direct students because they lacked prior industrial exposure.

5.3.6.2 Descriptive statistics for student data

This section analysed quantitative data for students using descriptive statistics such as mean and standard deviation. As has been alluded to in section 5.2.2, a mean threshold of plus or minus 2.5 was used as a decision point. A mean of say 2.3 would mean that most students did not agree with the view put across by the researcher and another one of say 2.9 would mean that majority of students agreed with the view.

Table 5.20: Student Descriptive Statistics

Item	Mean	Standard Deviation
1. My supervisor insisted on punctuality at my work place.	1.61	.891
2. My supervisor interacted very well with me.	1.68	1.044
3. I could choose to be absent at short notice.	3.26	1.409
4. My supervisor understood my rate of making mistakes.	2.19	1.386
5. Industrial work is quite similar to what I learn at the College.	2.32	1.508
6. Our College curriculum does not need to be revised.	3.64	1.337
7. My College supervisors always visited me every term.	3.00	1.451
8. Some customers were not satisfied with my service.	3.27	1.401
9. My practical knowledge of the job has been quite acceptable.	1.75	.989
10. I could use the correct workplace language with little difficulty.	1.99	1.175
11. My supervisor has been very helpful in areas I needed advice.	2.25	1.319
12. Generally, industrial attachment is useful to my job skills.	4.36	1.111

N=77

Most students disagreed with items 1, 2, 4, 5, 9 and 10 about their supervisors during their industrial attachment. According to most students, most supervisors had a casual approach towards punctuality (item 1, mean 1.61), suggesting that attachment was not much of a help. Most supervisors seldom interacted with students (item 2, mean 1.68) leaving them as 'orphans.' Maybe supervisors had high trust in students' competences. Item 4, mean 2.19 showed that most students observed that most supervisors did not understand very well, the students' rate of making mistakes. This is consistent with item 2, where most students disagreed that supervisors interacted with them. According to the findings of item 5, mean 2.32, most students observed that industrial work was not quite similar to what they learnt at the college. This is consistent with NAMACO stakeholders' conference deliberations where most presenters noted that college curriculum lacked relevance to the field of work (Mugoni, 2013: 9; Kamhara, 2013: 10; Nyaradzo, 2013: 6).

The views of NAMACO delegates were supported by Dasmani (2011: 67) who argue that there are weak linkages between vocational and technical education curriculum and local industries for hands-on-experience for both instructors and trainees and this leads to ineffective and inefficient training of students while emphasis is placed on passing final examination. This inadequacy in preparation for the job market brings workplace challenges to the graduates. African Union (2007) report also stressed the current vision of African countries in developing a new strategy to revitalize TVET in Africa.

5.4 QUALITATIVE DATA ANALYSIS

Chapter 4 covered the quantitative study of this thesis, including the processes of quantitative data collection, variable identification, as well as the empirical results of statistical analyses. As has been demonstrated in chapter 4, mixed-methods research that combines both quantitative and qualitative approaches was adapted as the research methodology in this thesis. A qualitative approach, in particular interview-based study, is valuable for exploring the PCS implementation by getting into the real-life situation where the PCS is implemented.

The objective of this section is to explain the procedures of qualitative data analysis. As mentioned before, to observe gaps in the extant literature, the potential interviewees in this study were polytechnic principals in order to provide a comprehensive picture of how polytechnic curriculum strategy is implemented. The fieldwork was undertaken between July and September, 2013. The researcher encountered great difficulties in getting access to principals and conducting interviews with them. Most principals were very busy with HEXCO examinations and also meeting with the Ministry of Higher and Tertiary Education, Science and Technology Development Permanent Secretary. Ultimately, 5 interviews with polytechnic principals were conducted face-to-face.

This section presents a detailed discussion of the empirical findings. The analysis of the empirical data has been done against the background of the literature review in Chapter 2 of this study (Saunders, Lewis & Thornhill, 2009: 152). The actual words

used by the principals have been used in facilitating the data analysis process. The direct quotations from the principals' own words helped with grouping meaningful comments into relevant categories. The next section provides a brief summary on the data analysis process followed in this study.

5.4.1 Overview of the data analysis process

Tesch's open coding method (Tesch, 1990: 144)) was used to guide the analysis of the collected data (cf. 3.6). This involved the inductive process of organising data into categories and identifying patterns (relationships) among them, then interpreting the data to provide answers to the research question (Cohen, *et al.*, 2011: 537, McMillan & Schumacher, 2010: 367). The next section focuses on the presentation of the empirical findings in this study.

5.4.2 Presentation of the Research Findings

McMillan and Schumacher (2010: 367) posit that it is prudent for the researcher to interpret the collected data that is organised according to categories. The presentation of the findings in this section is structured into categories. The categories are drawn from the collected data, and based on the main research question, research aim and research questions of this study (cf. 1.3). The layout of the categories is as follows:

- Principals' roles in effectively implementing polytechnic curriculum strategy;
- Principals' strategic leadership skills in the implementation of curriculum strategy;
- Challenges to the effective implementation of curriculum and possible solutions to these challenges; and
- Metrics or standards measure polytechnic curriculum strategy

The findings from the above categories are described in the following sections.

In order to preserve the anonymity of the principals they have been named as Principal 1, 2, 3, 4 and 5.

5.4.2.1 Principals' roles in effectively implementing PCS

The first objective of this study was to explore principals' roles in effectively implementing polytechnic curriculum strategy (PCS) (cf. 1.5.1). The different views of researchers explored and explicated in Chapter 2 of this study (cf. 2.3) partially addressed the afore-mentioned objective. In this category, the researcher aimed at achieving the above objective through presentation and discussion of the empirical data concerning what the principals viewed as the roles in effectively implementing PCS.

This section discusses their perceptions regarding the concept of principals' role in the crafting of PCS, and answers the following specific research question (RQ1): "What is the principals' role in crafting PCS?"

At the beginning of each interview, the researcher introduced briefly the area of interest and the definition of curriculum strategy from the perspective of academic research. It was found out that many principals have a sound theoretical knowledge of their roles as Principal1 stated:

> *The major role in curriculum implementation is to make sure that lecturing and ancillary staffs are well deployed in respective of their areas of specialisation. Staff members with right qualifications should be placed in their rightful capacities. Heads of Departments (HODs) and Lecturers in Charge (LIC) are appointed on a 2 year term to supervise the clinical interpretation of the syllabi documents on a day to day basis. Students should be also assessed as per standing syllabi regulations.*

Principal 2 concurs among other things, when he says that, "*We should recommend to the Civil Service Commission the employing of staff members with the right qualifications.*"

Generally, the employment of lecturers without a teaching qualification has always been a very contentious issue in polytechnics. This is because the CSC overlooks the enforcement of its professionalisation policy where staff members are given a

grace period of 2 years after appointment, to regularise their professional qualifications (cf. 3.6.4.3).

Principal 5 agreed with the above principals and went on to say:

> *We also make sure that enough administrative and instructional resources are adequate though we are quite limited in the extent this is done. As you are aware, budget in the last 3-4 years was quite constrained. Vehicles to visit each student on attachment are not easily obtainable. Fees paid by students, even though we should retain them, should not be used by colleges to purchase vehicles. This becomes a problem. What are they used for then? Every principal ensures that students' assignments are done and attendance is as high as 85% required by HEXCO. Though our student numbers are quite manageable, course work and examinations need strict supervision for the 6 HEXCO tasks per subject to be achieved effectively (Principal 5).*

Principal 5 seemed to be challenging the policy of retaining fees paid by students and using them only for prescribed expenses (cf. 1.2, paragraph 3). The role of the principal as the anchor of curriculum implementation cannot be over-emphasised.

5.4.2.2 Strategic leadership skills and the implementation of PCS

The previous subsection looked at how principals understood their role in the crafting of curriculum strategy. Principal 1 had this to say on the principal's strategic leadership skills and the implementation of curriculum strategy:

> *Strategic leaders should have proper vision, mission, goals, objectives and core values. In literal terms the goal is already known, say achieving 80% pass rate. Technically, as a leaders you need to network with other leaders of similar colleges within and outside the country. There is also need to contribute to current journals (Principal 1).*

Though the idea of contributing to current journals is more academic than being strategic, one may agree with Principal 1 on the fact that being more academic may improve one's vision and mission, thereby improving the effective curriculum implementation.

Principal 4 shared the same view when he says:

> Yes we are talking about vision, mission statements and analysis of external environment in order to come up with a clear picture of how an organisation can be run. We engage in retreats every 5 years where we map the way forward. This is done in considering with ministry thrust and we strategise in the same footprints. Though we can think outside the box, the ministry 'box' is rather restricted as key ministry areas are supposed to be reflected in each polytechnic key result area (Principal 4).

Principals are addressed by officials in the ministry of HTESTD that their strategy should be in line with the parent ministry's thrust (cf. 3.7.1.1). The implication is that principals are only as strategic as their leaders in the ministry can agree, depicting the level of autonomy constrained by the top-down approach. A traditional hierarchical (top-down) view of leadership [in the civil service] is still very evident (Lemay, 2009: 3).

Though Principal 2 agreed with the above colleagues on the need for principals to be strategic, he was more critical of the process:

> Strategic management workshops are held before the actual period of reference, say 2010 – 2014. Much time is spent on consultations during workshops when in fact there should be a prelude to such workshops. Normally there is no feedback that goes down to lecturer when strategic management issues are implemented. We tell HODs to cascade the information to their subordinates but this is not done as expected. Sometimes one would think that a strategic workshop in some resort place is just a holiday escapade. Though I might have a good vision for

the polytechnic, such an effort is normally superseded by Civil Service Commission (CSC) policies and ideas. My autonomy is restricted by public service rules and regulations and polytechnics might seem as though they are run by one person (*Principal 2*).

This principal conceded defeat in coming up with an autonomous strategic plan as he laments the heavy hand of the CSC and the parent ministry. In one instance, he seemed to be lacking control of his own 'lieutenants' in the form of HODs whom he accused of failing to cascade the polytechnic's strategic plan to the rest of the lecturers. The clear implication is that this principal lacked strategic skills of effectively managing the curriculum strategy. This confirms what the Business Day (1999: 37) posits that only 5% of the employees in most organisations understand the vision, thus leaving 95% of them in the dark. This thesis called this 'the vision barrier' (cf. 3.9).

The remaining two principals generally concurred with the above views, stressing the ministry's interference in the whole process before a nod is given. Principal 2 best summarises how they are supposed to be 'strategically skilled' by behaving as 'one person' running all the polytechnics.

5.4.2.3 Challenges faced by principals in the effective implementation of PCS

Principal 2 explained the challenges they face in implementing polytechnic curriculum:

As for challenges I face regarding the effective implementation of curriculum, these are numerous. Review of curriculum is a long and tedious process. HEXCO is responsible for this exercise but takes times to materialise. It is not as systematic as it should be. Many syllabi are seriously lagging behind of the needs of industry. Funding is another constraint as we should wait for budgetary allocations. Funds from amenities are too little to be meaningful. Now there are stakeholders interested in curriculum implementation like CRADU, ITTD and NAMACO. Though it is a good idea to have transparency for many angles, coordination is rather problematic. There seems to be lack of

consensus as to who should do what. Another challenge is that of decentralisation of marking in the ten regions of Zimbabwe. Whilst one standard paper is written nationally under the same conditions, it is not marked uniformly as standardisation of marking schemes is done in ten different regions. So the same paper will have ten different marking schemes resulting in differences in marking standards (Principal 2).

Several challenges raised by Principal 2 can be summarised below:

- Review of curriculum is a long and tedious process
- Funds from amenities are too little to be meaningful.
- There is lack of consensus among stakeholders (CRADU, ITTD and NAMACO) in the nature of the curriculum standards.
- The decentralisation of marking dilutes the uniformity of marking schemes.

Review of the curriculum is taking too long to keep abreast with changes in industries hence the curriculum has become too archaic to be meaningful. Mugoni (2013: 9) argues that, *"Our [Automotive] Sector could be appropriately described as being stagnant due to the general mismatch which exists between our college curricula and the industry specifications and expectations."* Stakeholders fail to come up with a clear road map on how college curricula should be planned, implemented and evaluated. This was evident on the NAMACO (2013) stakeholders' conference where speaker after speaker echoed the same challenge of failing to have consensus.

Principal 3 noted that resources were a challenge in some departments though in IT, there were no challenges as a ratio of 1:1 of student-computer ratio was realised. However, what she saw as a big challenge was not being able to send lecturers to industrial attachment as they lagged behind in terms of new trends in technology. This, she said, would result in a situation where students from industrial attachment would be better off than their lecturers. Principal 5 concurred as he outlined a series of challenges:

One serious challenge is that lecturers are not up-to-date with new technology in industry, and the Ministry, though it has a policy of such a calibre, how to implement it is actually a problem. How do you send a lecturer for internship in a critical area without a replacement and remain effective? Who will teach those students in his/her absence? It is like when a lecturer applies for a vacation leave and is asked to look for his/her replacement. In such a scenario a fellow lecturer is handpicked to take over the lecturing load to facilitate the smooth vacation leave application. However, this lecturer who is left behind has a 24 hour weekly load and is not able to take up someone's load. This leaves students whose lecturer has gone on leave unattended until the leave period is over. Another challenge is that of lack of adequate resources. One may lament the need to follow up on students on industrial attachments where vehicles are not adequate enough to visit all students three times per year. The state of classrooms and their adequacy is another drawback but we just make do with what we have (Principal 5).

Three challenges are cited by Principal 5. These are:

- lack of exposure of lecturers to industry new trends of technology;
- failure to replace an already heavily loaded lecturer on leave; and
- lack of adequate resources, especially vehicles to follow up students on industrial attachment.

These challenges were raised by four out of the five interviewed principals, showing the commonness of the challenges across polytechnics. The second challenge is quite tricky to overcome at short notice because of a critical shortage of lecturers even before a replacement can be considered. What this means is that students remain unattended the whole period the lecturer is on leave because the replacement would be very difficult to get.

5.4.2.4 Standards for measuring polytechnic curriculum strategy

Given the importance of PCS implementation, (cf. 2.6.1 to 2.6.6), it is not surprising to find that the polytechnics through HEXCO and CRADU have expanded their measurement systems to measure the polytechnic curriculum implementation process. This section concerns issues related to measuring PCS implementation, what difficulties they have encountered, and how they measure different components of implementing PCS.

Most of the principals interviewed appeared to be mostly concerned with quality of quantitative metrics in measuring PCS implementation. Principal 5 was worried about standards when he mentioned that:

> *In Mechanical Engineering, for example, students are given an assignment in Engineering Mathematics. All students get 100% in that assignment. Are they all very intelligent? No! They are <u>copying each other</u>. The environment in which they write such assignments permits <u>cheating</u>. Nobody monitors them. When it comes to tests, students begin to get lower marks. Why? This is because this is actually a monitored process and students are well supervised. <u>This curriculum is much more of cognitive than psychomotor</u>. Its TVET content is actually a problem. <u>Assignments are heavily theoretical</u>. Emphasis on 60%-40% is not much of a problem. This is because we want to build a student who is practically oriented, a hands-on practitioner. This is tertiary education where students should be trained to be practically-oriented in the job setting (Principal 5).*

The idea that more emphasis is given to theory than practice is worrisome. It is the implementation that is problematic. In-class exercises should be administered if assignments cannot be individualised. Where there is no Turnitin software to monitor and control plagiarism, then it becomes a problem. The issue of curriculum being more cognitive than psychomotor goes back to lack of lecturer competencies in andragogy which have been alluded to before (cf. 1.2; 1.3; & 3.7.3.2.2.1). The

coursework/exam marks weighting policy of 60%-40% is not being implemented as envisaged because lecturers are not properly oriented to its philosophy and praxis.

Principal 4 concurs with principal 5 and clarified that:

At face value, these weightings look very valid. However, how the assignments are crafted might be problematic. Many lecturers theorise practical assignments and all the 4 assignments become theoretical instead of having 2 theory assignments and 2 practical. The challenge here is to train a lecturer in andragogical skills quick enough to deliver a lesson when the students are waiting for him/her. That professionalisation policy is a toothless bulldog as Civil Service Commission seems not keen to enforce it. You know, course work can be cheated by students to the extent that an average of 90% does not mean much. When it comes to tests, the performance is rather different now as students perform dismally (Principal 4).

The same point of theorising practical aspects of the polytechnic curriculum seemed the order of the day. What is very surprising is that this came from principals who are the chief executive officers of polytechnics. One would ask why they cannot correct this anomalous status quo. Even the employer (CSC) seemed to be turning a blind eye to lecturers whom they appoint without requisite qualifications.

Principal 2 brought in another dimension of standards that were haphazardly introduced in October 2013. This is what he said:

Coursework is administered to students throughout the whole year. This is supplemented by 2 tests per subject. The weighting is 60% for course work and 40% examination. Now 3 fieldwork assignments per subject are now required in a hotchpotch way. It is only in October 2013 when we received a communication to the effect that the 2013 mark sheet has to incorporate 30% -3 field work assignments and 3 industrial competencies for each subject (Principal 2).

The principals were asked to implement the new changes with immediate effect. How they were going to do it was a mystery. No explanations were given as advance information. One would assume that someone unknowingly delayed this circular only to realise that it was too late then sent it very late principals. This might have resulted in principals coming up with marks of suspicious origin.

Principal 1 was more comprehensive in outlining the standards when he posited that:

> *Standards used to measure curriculum effectiveness in Zimbabwean polytechnics are two-fold. Some come from CSC in terms of lecturer qualification, lecturer-student ratio and lecturer load of a maximum of 24 hours a week. Other standards are from HEXCO in terms of 60%-40% weighting of coursework and examination. Course work is broken down into 30% (2 practical assignments), 20% (2 theory assignments) and 10% (2 tests) per subject. Now we have just gathered that HEXCO now needs to change this coursework structure to <u>30% industrial competences and the other 30% from practical assignments generated from field assignments</u>. Having 3 assignments from field visits per subject, for say 8 subjects per student is not practical. Another standard is on the job, education and training (OJET), where a student goes for industrial attachment after 2 years of theory at a polytechnic. This has improved the skills acquisition by students (Principal 1).*

Principal 1 explained that he was happy with all standards but remained worried by the practicality of implementing the change of HEXCO standards from the 60%-40% policy of the old structure to the field assignments. What this meant was that each field assignment would be generated from a field visit by the student under the close supervision of the lecturer. Supervising an accounting class with 25 students trying to come up with three field assignments per subject for 8 subjects would not be an easy task. One might envisage a situation where lecturers would come up with 'marks' to fill the required mark sheets regardless of the origin of those marks.

On another note, Principals 1 and 3 concurred on the idea of not agreeing to '*TVETISE*' a supporting or non-core subject like communication or business

mathematics in an area of Accounting or Information Technology. This irked them as they noted the poor quality of the curriculum they were subjected to. Therefore, there appears to be a paradox in the quality of measuring PCS in a quantitative way. The inherent lack of quality makes PCS implementation measurement more difficult. The next subsection, therefore, discusses how the principals view the effectiveness of CRADU and NAMACO in measuring PCS Principal 1 noted the weakness of CRADU when he said that:

> CRADU *must approach polytechnics for consultation as this is what is lacking now on standards development. Technocrats from industry must be invited to craft curriculum with polytechnic experts. Members from NAMACO must be requested by* CRADU *to help craft meaningful standards. This can be done through NAMACO sectoral committees, such as Mechanical and Engineering. This is because* CRADU *members are not technically qualified to unilaterally craft competencies. We can safely say* CRADU *has no standards of its own. It makes use of standards in the HEXCO syllabi.* CRADU *has no act of parliament. It acts behind HEXCO. Originally there was Zimbabwe Occupational Standards Services (ZOSS) which was encapsulated by* CRADU (Principal 1).

Principal 2 did not concern himself much on the politics of CRADU, but quickly pointed out the standards it was trying to formulate and its weaknesses:

> CRADU *does not have a legal basis so hides under the Higher Education and Tertiary Act. It is in the process of developing standards of competences. It is trying to come up with modularisation standard where each module will reflect a key competence such as panel beating or painting, resulting in producing a panel beater or a painter. The major challenge is that of lack of adequate consultation among stakeholders (Principal 2).*

Whether CRADU has a legal basis or not, the issue is neither here nor there. Even HEXCO has no legal basis but operates under the Ministry of Higher and Tertiary Education, Science and Technology Development (HTESTD). The major issue here

was that the quality of CRADU modularisation standards were hindered by failure to consult stakeholders to secure buy-in. These stakeholders include NAMACO which reports to CRADU in terms of policy and polytechnics. Early in 2013, during the development of modules (which CRADU called standards), lecturers (referred to as 'experts') would be handpicked from polytechnics and organised to produce modules at short notice without prior training. Such a flawed process would not improve the quality of standards. Principal 4 noted the inactivity that was inherent in CRADU over the years. Moreover, he highlighted CRADU's weakness of failing to come up with what observers would call a module. Principal 4 explained:

> *We hear nowadays about* CRADU. *It has been silent all these years. It tried to come up with modules which it failed to implement. In fact they were not modules but course outlines in the name of modules. No content was evident. So it was very difficult for lecturers to implement. Though the idea of competences is a noble one, around April, 2013, modularisation was disbanded with no clear reason.* CRADU *officers seem incompetent to articulate the skills, so* CRADU *ideas are still far-fetched (Principal 4).*

One would argue that CRADU is yet to grasp the difference between a real module and a course outline. This tells one a story about the quality of CRADU standards. Principal 1 summarised the role of NAMACO though with some reservations:

> *You would want to know that NAMACO is the highest body which advises the Minister of Higher and Tertiary Education on manpower requirements of the country. If for example, there are new deposits of diamonds that need mining; NAMACO should advise the minister on the need to increase the enrolment of geologists who are capable of mining diamonds. Now there is a friction between NAMACO and* CRADU *over the polytechnic standards development. Why there is such a friction it is not clear. It boils down to some ineffectiveness of NAMACO to be embroiled in a dispute with a less important subordinate. Zimbabwe Occupational Standards Services (ZOSS) was developing standards to be used by* CRADU *which was formerly Curriculum Research and*

Development Unit (CRADU). Then CRADU *is supposed to articulate these standards with polytechnics. Thereafter students would go to work in industries whose standards would have been developed by NAMACO. Why ZOSS is no longer evident now is a mystery and a lot of politics is involved, I don't want to go into details (Principal 1).*

NAMACO is the highest body which advises the Minister of Higher and Tertiary Education on manpower requirements of the country (cf. 2.4). Principal 1 gave a reason why NAMACO is not very effective in standards development. He was reminiscing about the historical development of CRADU and how ZOSS was taken over by CRADU which in his view was not capable of developing good standards.

Principal 2 agreed with Principal 1 on the role of NAMACO on standards development, but went further and lamented on NAMACO's ineffectiveness:

Of late its role has been overshadowed by CRADU *and has not been very active in policy making.*

However Principal 2 applauded NAMACO:

In 2012, NAMACO was given a mandate to research [on] the impact of public-private partnerships (PPPs) on industrial development. Although the results are not well documented, it was a good attempt towards the realisation of its mandate.

Principal 4 further elaborated on the role of NAMACO when he said that:

Curriculum is designed from NAMACO through sectoral committees like automotive, mechanical and electrical. NAMACO is an industry body which advises the minister. I will give you an example in automotive, this time it is difficult to draw a line between the traditional motor mechanic and auto electrician. NAMACO is saying as an industry body, an auto-technician is now needed who can do both jobs, that is to say two-in-one. Delta as a company will say it has no resources to pay for two

separate people. Go to Range Rovers, for example, a technician will go with a laptop to diagnose the problem. This is where industry is going. This is the auto-technician. Industrial and Trade Testing Department (ITTD) comes in as a quality controller. ITTD comes in as implementer of quality on the ground on behalf of NAMACO. Its effectiveness is rather questionable as we do not hold any meeting with its representatives so that we are apprised of its role as an advisor to the minister. I am not sure whether NAMACO is really responsible for all these changes within HEXCO (Principal 4).

Though the role of NAMACO is clear in Principal 4's views, it lacked adequate consultation as it did not hold meetings with its representatives. Principal 4 was not sure whether changes in HEXCO standards (of introducing field assignments) could be attributable to NAMACO or from elsewhere. If the results were not well documented, then how did that make this policy-making body effective? It can be deduced from all principals interviewed that NAMACO had not been effective in realising its mandate outlined in section 2.4.

Table 5.21:Polytechnic curriculum strategy metrics.

Ratios	16 Students to one lecturer ratio
	One LIC to6 lecturers ratio
Weekly workload – lecturers	workload of 24 hours
- Lecturer-in-charge	workload of 18 hours
- Head of Department	workload of 12 hours
- Head of Division	workload of 8 hours
Classroom	16 Classroom-to-student ratio

The above table shows the different loads that different lecturers by post execute in order for the implementation of PCS is more effective. For example a lecturer in charge (LIC) supervises around 5 lecturers and need fewer hours (18 hours instead of a maximum of 24 hours) to deliver instruction so that some hours are reserved for supervision. The same applies to a head of department (HOD), who lectures only for 12 hours per week, leaving the 12 hours to supervise LICs and lecturers.

5.5 THE INTEGRATION OF QUANTITATIVE AND QUALITATIVE APPROACHES

As mentioned in section 1.4 of chapter 1, the main research question of this thesis is "What is the role played by strategic leadership in the implementation of polytechnic PCS?" In order to answer this question, both quantitative and qualitative approaches were employed. The former used statistical analysis to analyse data from lecturer, manager and student questionnaires, while the qualitative data from interviews with principals was analysed using thematic analysis. These two studies were conducted almost at the same time, thus this allowed the integration to occur during the stages of data collection and data analysis, as well as in the discussion of the empirical results.

How the quantitative and qualitative approaches were integrated together during the data collection and data analysis stages has been discussed in chapter 4. This section discusses how findings from the quantitative and qualitative study connected and compared in terms of curriculum strategy implementation.

Quantitative data was analysed through descriptive statistics and factor analysis. On the other hand, the qualitative interviews revealed that there were categories generated from research questions. It can be seen that the categories and subcategories that seemed to have been generated in the qualitative phase had been first identified in the quantitative study, showing that these two studies were framed based on similar ideas and structures. This allowed the quantitative and qualitative approaches to be conducted consecutively. By doing so, evidence generated from the two approaches was easier to compare and cross-check to achieve the purposes of triangulation and complementarity.

The triangulation evidence was mainly related to two aspects. Firstly, empirical results of the quantitative study showed that principals tended to impact on curriculum strategy implementation and polytechnic performance as evidenced by descriptive statistics in Section 5.2.2 above. For example, the principal's roles in the implementation of curriculum appeared to affect student performance significantly, while the principal's strategic leadership capacities significantly affect the quality of the polytechnic graduate produced.

Secondly, it was found out from the quantitative study that the combination of principal's strategic leadership skills, lecturer competence and instructional delivery quality had a much higher explanatory power for explaining the variations in student performance. In addition, the combination of different curriculum strategy intangible elements appeared to better explain the variation in polytechnic curriculum implementation performance than when they were viewed in isolation. Similar findings were observed from the qualitative study, in which principals emphasised the combined or balanced effects of curriculum strategy intangibles on institution performance. Most principals noted that the combined effects of intangible resources were more important, although they recognised that some critical intangible resources could influence directly the institutions' performance (for example, human capital). The evidence provided by both the qualitative and quantitative studies supported the importance of resource integration highlighted by the RBV theory.

Findings from the quantitative study on poor curriculum standards by CRADU were corroborated by the qualitative study when principals questioned the imposition of standards by CRADU. Lecturers did not agree that the CRADU standards were effective in measuring curriculum strategy (Table 5.9, mean 2.33). Most principals had the view that lack of adequate consultation among stakeholders culminated in poor curriculum standards. This was because stakeholder standards were not met.

It can be seen that the quantitative and qualitative studies were closely integrated with each other in terms of providing confirmation of some important findings. This is because low mean values in Section 5.2.2 were confirmed by views of principals. Most principals confirmed that standards were poor, there were many challenges in implementing the curriculum strategy and that NAMACO and CRADU were not living up to their expected roles. This enhanced the external validity of the overall research. Apart from the triangulation of results, the combination of the quantitative and qualitative approaches also has the potential to overcome the limitations of adopting a single method.

5.6 CHAPTER SUMMARY

This chapter has analysed both quantitative and qualitative data. The three sets of questionnaires (lecturers, managers and students) were analysed separately using descriptive statistics (mean and standard deviation) before the qualitative data were analysed using categories and themes.

Most lecturers did not agree with the competences of principals in executing curriculum effectiveness strategy as evidenced by the means portrayed by the descriptive statistics which were generally lower than the decision point of 2.5 (principals' roles, 2.66; strategic leadership capacities, 2.47; challenges faced by principals in executing curriculum strategy, 2.29; implementing polytechnic curriculum strategy, 2.12 and quality of curriculum standards, 2.33).

The principals' role in the implementation of PCS in Zimbabwean polytechnics is faced with a number of challenges. Chief among them is the lack of resources to effectively implement polytechnic curriculum, and this is mainly a result of the socio-political and economic crisis prevailing in the country. One of the challenges is the poor quality curriculum standards due to lack of adequate consultation from NAMACO, CRADU and HEXCO. Another challenge is a mismatch between lecturer knowledge and knowledge of students from industrial attachment. This is because lecturers were not sent for industrial attachment and yet they were expected to facilitate learning with students who would be more knowledgeable about industrial technological trends.

It also emerged that lecturers did not agree with NAMACO and CRADU as champions of quality HEXCO standards. This was also confirmed by all principals during interviews. The complementarity role of mixed methods research was instrumental in confirming the views of lecturers in the quantitative phase by principals' views in the qualitative phase of the study.

The next chapter provides a general overview of this study, summary of the key findings and recommendations drawn from the key findings of this study. The limitations of this study, possible areas for further study, and conclusions are also provided in the ensuing chapter.

CHAPTER 6

SUMMARY, RECOMMENDATIONS AND CONCLUSION

6.1 INTRODUCTION

The previous chapter presented and discussed the data that emerged from the empirical study. The purpose of this concluding chapter is to summarise the study. To this end, the current chapter presents a general overview of the preceding chapters, a summary of the key findings and conclusions emanating from the key findings of this study. These are followed by recommendations for the implementation of the polytechnic curriculum strategy. The important limitations to this study are identified and possible areas for further research conclude this chapter. These aspects are discussed sequentially in the next sections.

6.2 SUMMARY OF QUANTITATIVE FINDINGS

This section provides a summary of the quantitative findings.

6.2.1 Principals' Role in Crafting Polytechnic Curriculum Strategy

The effectiveness of the principal is determined by his or her ability to influence the performance of the entire polytechnic (cf. 2.3). The various aspects of the principal's roles are discussed in paragraphs 3.4. to 3.7 of chapter 3.

6.2.1.1 Facilitating staff development programmes for lecturers.

According to the findings in section 3.6.4.5, principals need to be responsive to best practices in instructional delivery quality. This was not confirmed in the results in Table 5.5 (mean 2.09) where most lecturers did not agree with the statement that principals facilitated staff development programmes for lecturers. The Ministry of Higher and Tertiary Education allocates manpower development leave slots for each of the polytechnic staff members (cf. 3.6.4.7). Harare Polytechnic alone with a staff establishment of 600 has a paltry study leave quota for 8 staff members per year. This explains why lecturers disagreed with the statement that the role of principals is to facilitate staff development programmes for lecturers.

6.2.1.2 Organising resources for instructional delivery

The findings in section 3.6.4.7 indicate that an organisation's ability to marshal the resources to support new strategic initiatives and steer them to the appropriate organisational units has a major impact on the strategy execution process. Empirical evidence shown in Table 5.5 (mean 2.37) indicates that most lecturers agreed that principals mobilise resources for instructional delivery effectively. According to the findings in section 3.6.4.7, strategic leaders must acquire, develop and effectively manage organisational resources in order for their organisations to be successful in the dynamic, uncertain and complex competitive environment. Furthermore, as reflected in Table 5.7, lecturers agreed that scarce resources inhibit effective curriculum implementation and this is evidenced by a mean value of 2.76. The findings of the study showed that principals exhibited substantial courage and exercised considerable resilience in resource mobilisation under very difficult socio-political circumstances.

Resources should be disbursed equitably according to the needs of the departments. This was supported by Principal 1 who stated thus during an interview: 'In 2013, for example, we did not get any government funding. We have been self-reliant in resource mobilisation at local level.' It also emerged during the empirical study that the availability and equitable allocation of resources in polytechnics was not fully supported by most principals (mean 2.23, Table 5.8) though the above cited principal revealed that he was self-reliant.

6.2.1.3 Supervising lecturers on academic issues

According to the findings in section 3.9, supervision entails the direct monitoring of instruction and the collection of data that may be useful in setting targets for improvement. The process of supervision calls for considerable personal contact between the lecturer and the instructional leader. This was confirmed in the empirical study in Table 5.5 (mean 2.56) where most lecturers agreed that principals supervised lecturers on academic issues. The mean (above 2.5) indicated that most lecturers viewed their principals as competent in supervising them on academic issues. The researcher's experience revealed that only a collection of schemes of work, mark sheets, registers and performance appraisal forms that had been

completed constituted competence without placing any emphasis on what was written in most of these documents. This lack of quality in scrutinising documents compromised the quality of curriculum strategy implementation.

6.2.1.4 Incentivising lecturers to improve performance.

The findings in section 3.6.4.6 reflect that a properly designed reward structure is management's most powerful tool for mobilising organisational commitment to successful strategy execution. This was not confirmed by the findings in Table 5.5 (mean 2.16) where most lecturers did not agree that principals incentivise lecturers to improve performance. Principals always claim that their hands are tied by the Civil Service Commission (CSC) policies. However, CSC is very flexible in approving sound suggestions put forward by principals. This lack of innovative ideas to motivate workers compromises the quality of curriculum strategy implementation.

6.2.1.5 Attending to human resources issues that affect lecturers.

Empirical evidence in Table 5.5, mean 2.69 revealed that most lecturers agreed with the statement that principals were competent in attending to human resources issues that affected lecturers, like taking vacation leave. This demonstrated that most lecturers' human resources issues were timeously attended to without hassles. To get employees sustained and energetic, management has to be resourceful in designing and using motivational incentives, that is, both monetary and nonmonetary. Human resources issues are motivational and have to be attended to on time. Motivational issues influence curriculum strategy in that lecturers are driven to achieve higher standards of PCS implementation if they are well motivated.

6.2.1.6 Upgrading skills of lecturers

Most lecturers did not agree with the statement that their principals were able to upgrade skills of lecturers in line with changing industry needs as shown in Table 5.5, mean 2.06. Despite CSC professionalisation policy that encourages civil servants to obtain relevant qualifications in their departments within three years of appointment, section 2.3.5 indicates that most polytechnic lecturers are not qualified to teach as they lack training in education. CSC has a manpower development leave

that is offered to civil servants to further their studies. Even though there is a CSC policy to develop human resources, the lecturers' initiative to develop themselves is met with very rigorous, bureaucratic selection procedures. The quota or number of lecturers approved to undergo further studies is too small to be meaningful. This compromises the quality and objective of implementing polytechnic curriculum strategy.

6.2.1.7 Communicating with all departments effectively through curriculum meetings

Most lecturers agreed that principals effectively communicated with all departments through memos and meetings on curriculum issues. This is evidenced by mean 2.63 in Table 5.5 which is slightly above 2.5. Though principals are controlled by CSC in terms of policy pronouncement, communication is usually informative as it cascades to lower echelons of polytechnics. Such effective communication in polytechnic departments is beneficial for effective implementation of PCS. Effectively communicating through memos and meetings is one thing but being able to communicate curriculum strategies might be very different.

6.2.2 Principals' Strategic Leadership Capacities

According to section 3.4.4, the strategic leadership capacities of the principal in implementing PCS depend on the skills of the strategic leader.

6.2.2.1 Strategic direction in polytechnic curriculum implementation

According to section 3.6.1, the principal needs to develop a strategic vision, which in turn, provides many benefits: a clear future direction, a framework for the organisation's mission and goals, and enhanced employee communication, participation, and commitment. This was confirmed in the empirical study in Table 5.6. Principals, as strategic leaders, have a management's view of what the organisation seeks to do and to become over a long-term and this is the organisation's strategic mission (paragraph 3.5.1). Empirical study on strategic leadership capacities reveals that few lecturers agree by a mean of 2.47 that their principals are effective (Table 5.10). This might be explained by the fact that principals as civil servants are not entirely autonomous in policy formulation,

implementation and evaluation. This view that principals are not effective in implementing PCS confirmed the views of the December 2013 NAMACO conference presenters, most of who noted that polytechnic curriculum implementation is out of sync with industry needs in terms of skills.

6.2.2.2 External environment and curriculum implementation

According to section 3.5.1, the task of analysing the environment was identified as a relevant situational factor of strategic leadership. Leaders require the ability to scan the environment to develop knowledge of all the organisation's stakeholders, for example, customers, suppliers, shareholders, and other salient environment trends and events, and integrate this knowledge into a vision of what the organisation could become. This was validated in the empirical study in Table 5.6 where the views of lecturers mildly agree by a mean of 2.35 that principals are able to scan the external environment effectively for the benefit of PCS.

6.2.2.3 Implementation of well properly designed incentives

Sections 3.6.4.6 and 3.5.2 reflect that if principals as strategic leaders lack skills to put in place adequate reward systems, narcissism takes centre stage. A polytechnic principal, as the strategic leader should create a properly designed worker incentive scheme to motivate staff members to achieve polytechnic objectives (cf. 3.5.2). The results in Table 5.6 revealed that most lecturers disagreed that principals were effective in facilitating meaningful incentives as evidenced by a low mean score of 2.08. The lecturers were of the view that principals were trying their best to create a properly designed worker incentive scheme under difficult circumstances, although this would drive staff members to deliver instruction effectively and produce competent polytechnic graduates.

6.2.2.4 Human capital development

Strategic leaders have to deliberately ground their actions in clear personal and professional values in order to create a culture of competence-based teaching and learning in the institution as advocated by TVET (cf. 3.7.2). From the perspective of human capital, employees are viewed as a capital resource that requires investment.

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The results in Table 5.6 revealed that principals lack the zeal to encourage lecturers to upgrade their pedagogical skills. Though the CSC professionalisation policy is in place, principals do not do much in creating a positive environment that allows staff members to advance their skills apart from the stringent manpower development leave quota from the CSC (cf. 3.4.6.7).

6.2.2.5 Social capital development

Section 3.7.2 revealed that social capital is reflected in the ability of groups to collaborate and work together, and is basically a function of trust. Effective networks of relationships characterised by high levels of trust are a valuable, but often overlooked, resource in the creation and use of knowledge. However, empirical evidence in Table 5.6, of mean 2.99 showed that most lecturers revealed that principals were able to facilitate social capital development. Social capital is the way people work together, negotiate meaning, and design the myriad of decisions and transactions they make together every day (Seemann, De Long, Stucky & Guthrie, 2000: 3). This is evidenced by the thrust in teamwork in all tasks, especially during marking HEXCO examinations where marking is not individualised but is done by a cluster of markers in what is called 'belt marking.' This concept of belt marking involves two or more examiners marking one script rather than one examiner marking the script alone.

6.2.2.6 Development of structures, policies and controls

Empirical evidence in Table 5.6, with mean 2.33 showed that lecturers did not agree that their principals were able to develop structures, processes and controls for the organisation. The findings in section 3.7.5 show that strategic control entails continuous monitoring, reviewing and updating of the strategy in order to ensure the continuing efficacy of strategy implementation efforts. On the other hand, an organisation's policies and procedures can either assist or block good strategy execution (cf. 3.6.4.7). The organisational structure specifies the organisation's formal reporting relationships, procedures, controls, authority and decision-making processes. Principals are not that autonomous to the extent of coming up with new structures and policies. They may employ some controls in curriculum

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implementation through concurrence with the parent ministry and Civil Service Commission. This speaks volumes about their inherent limitations.

6.2.2.7 Effectiveness of HEXCO internal and external assessment

According to sections 1.3.5; 3.6.4.8 and 3.5.3, the principal needs to contribute much to the quality of HEXCO internal and external assessments. This was confirmed by the results in Table 5.6 where it emerged that the mean value of lecturers' views was 2.48, agreeing to some extent that HEXCO assessments are not very effective. This is despite the fact that principals in the ten regions of Zimbabwe that fall in the HEXCO decentralisation of examination administration, sit on the HEXCO board that oversees examination quality issues. HEXCO internal assessment predicts the extent to which students will do better in real places of work in industry.

6.2.3 Challenges to Curriculum Strategy

According to the findings in section 3.6.4.8, leaders fail to be strategic because they lack focus, employ loose tactics where polytechnics actually do activities not aligned with the organisation's strategy, and focus on short-term success at the expense of long-term viability. Executives think of the people who will implement strategy as mere lines and boxes on an organisation chart, and they inevitably fail to tap into the full power of the organisation.

6.2.3.1 Curriculum strategy not effectively communicated to lecturers

It emerged in the results in Table 5.7 that the mean value of lecturers' views was as low as 2.05 in agreeing to the extent that curriculum strategy was not effectively communicated to lecturers. Very often, strategic plans are not discussed with lecturers after strategic workshops. Most principals assumed that their HODs usually cascaded such crucial information. This is an apparent contradiction with section 6.2.1.7 above but the difference lies in communication of curriculum strategy rather than general communication with memos and in meetings.

6.2.3.2 Staff members do not understand curriculum strategy

The results in Table 5.7, mean 2.46 indicated that most lecturers disagreed that staff members understood curriculum strategy. This is consistent with section 6.2.3.1 where it was revealed that curriculum strategy was not effectively communicated to lecturers. It is in this regard that strategy not effectively communicated to staff members could not be understood by the same stakeholders.

6.2.3.3 Staff members are not well motivated

Section 3.6.4.6 reveals that to get employees sustained, energetic commitment, management has to be resourceful in designing and using motivational incentives, that is, both monetary and non-monetary. The results in Table 5.7 with mean 2.15 revealed that most lecturers disagreed with the statement that staff members were well motivated. Holders of master's degrees earning an average salary of less than R7000 could not confirm that they were motivated.

6.2.3.4 Alignment between polytechnic culture and effective polytechnic curriculum implementation

Sustaining an effective organisational culture is viewed as one of the several identifiable strategic leadership actions that positively contribute to the effective implementation of strategy (cf. 3.7.3). As Table 5.8, mean 2.16, reflects, very few lecturers agreed that the culture of the polytechnic contributes towards effective implementation of polytechnic curriculum. Culture determines how an organisation sets its priorities, the kinds of questions it asks, and the style of leadership it adopts. It encompasses the prevailing way of organising work, and the type of people it attracts (Morgan, Levitt & Malek, 2007: 100).

6.2.3.5 Strategies poorly or vaguely formulated

According to findings in section 3.6.3, the task of formulating the strategy entails taking into account, all of the relevant aspects of the organisation's internal and external situation (environmental scanning), and devising a detailed action plan for achieving the targeted short-run and long-run results. As Table 5.7, mean 2.51 reflects, many lecturers agreed with the statement that strategies are poorly or

vaguely formulated, and this is indicated by a mean which is slightly above the threshold of 2.5. The findings of the study have shown that if strategies are poorly formulated, strategy will fail to be a blueprint of all the important entrepreneurial, competitive and functional area actions for sustained success (cf. 3.6.3).

6.2.3.6 Ethical practices not well enforced in curriculum implementation

According to findings in section 3.7.4, a culture of ethics needs to permeate the entire organisation. Organisational leaders that act ethically encourage and enable their employees to act likewise in the implementation of strategy. This was not corroborated by the findings in Table 5.7, mean 2.16, which revealed that many lecturers disagreed with the statement that ethical practices are well enforced in curriculum implementation, and this is indicated by a mean which is below the threshold of 2.5.

6.2.3.7 Evaluation of curriculum strategy implementation

The evaluation of polytechnic curriculum is done through industrial attachments, coursework (both practical and theoretical), and written examination for each course (cf. 1.3.5). Empirical evidence in Table 5.7, mean 2.10, revealed that few lecturers agreed that polytechnic curriculum strategy implementation was very effective. This tallies with section 6.2.4.6 below where most principals questioned the validity of the evaluation of polytechnic curriculum standards by CRADU and NAMACO.

6.2.3.8 Core competences not aligned with curriculum strategy

According to findings in paragraph 3.6.4.5 and in section 3.7.2 paragraph 9, core competencies are "...an organisation's capacity for undertaking a particular productive activity." Lectures delivered by unqualified lecturers do not in themselves bring quality of instruction. Most polytechnic lecturers are not qualified to teach as they lack training in education (cf. 3.6.4.3).

6.2.4 Implementation of Polytechnic Curriculum

This section outlined the views of lecturers regarding each of the components (cf. 6.2.4.1 to 6.2.4.5) of PCS implementation.

6.2.4.1 Structure of polytechnics

An organisational structure can be regarded as a framework which facilitates strategy implementation in order to achieve organisational objectives (cf. 3.6.4.2). Changes in the external environment necessitate changes in the strategies. In turn, changes in strategy often require changes in the manner in which an organisation is structured, as the existing organisational structure may become ineffective (cf. 3.6.4.2). As Table 5.7, mean 1.96 reflects, very few lecturers agreed that the current structure of polytechnics contributed positively towards effective implementation of PCS. The current structure of polytechnics consists of a substantive principal and his or her deputy (appointed by the CSC) and heads of department and lecturers in charge, who are appointed by the principal without the involvement of the Civil Service Commission (CSC). This is reflected in section 3.6.4.2of chapter 2.

6.2.4.2 Performance management system in the polytechnic

The results in Table 5.8 indicated that the mean value of lecturers' views was as low as 1.96 in agreeing to the extent that performance management system in the polytechnic is effective. Very often, key result areas in the results-based management (RBM) are not discussed and agreed to by lecturers and principals before implementation. Key result areas are imposed by the Ministry of Higher and Tertiary Education, Science and Technology Development. Due to the rotational nature of HOD posts in polytechnics, HODs are very weak in enforcing a strict supervision culture with lecturers. This is because HODs know that one day they will leave these posts and revert to being ordinary lecturers.

6.2.4.3 Strategic leadership in the polytechnic

According to the findings in section 3.4.4, effective strategic leaders are not only competent in crafting the vision, mission statement, and strategic objectives, but are also competent in implementing strategies. The same section (cf. 3.4.4) highlights that effective strategy implementation depends largely on effective strategic leadership. The results of the empirical study captured in Table 5.8, mean 2.11, show that very few lecturers agreed with the statement that principals' strategic leadership skills were very effective in implementing PCS.

6.2.4.4 Training and development

The results in Table 5.8, mean 2.0, indicate that lecturers disagreed with the view that that principals were effective in facilitating training and development. Very often, principals were not instrumental in accommodating every staff member who wished to further his or her education through manpower development leave (MDL). This was because CSC unilaterally allocates a specific number of lecturers who would go on MDL. This leaves principals very weak in choosing deserving lecturers to go for MDL. Consequently, this compromises the principals' role of implementing the curriculum strategy, if staff members fail to develop themselves timeously.

6.2.4.5 Information systems in the polytechnics

According to findings in section 3.6.4.4, state-of-the-art support systems can be a basis for competitive advantage if they give an organisation some capabilities that rivals cannot match. The results in Table 5.8, mean 2.28 showed that most lecturers disagreed that principals were effective in facilitating sound information systems in the polytechnics. An observation by the researcher in one of the polytechnics in November 2013 indicated that no lecturer had a computer or laptop on his or her desk. Only HODs and some lecturers-in-charge had this privilege. Most lecturers were not able to present lectures using PowerPoint. This alone shows that the quality of instructional delivery is most likely routine and compromised.

6.2.5 Standards for Measuring Curriculum Strategy

This section outlined the views of lecturers regarding each of the components (cf. 6.2.5.1 to cf. 6.2.5.6) of PCS implementation.

6.2.5.1 Emphasis of theoretical assignments

According to the results in Table 5.8, mean 2.76, most lecturers agreed that there was too much emphasis on theoretical assignments. As stated in section 5.3.7, one principal noted that polytechnic curriculum focused more on cognitive than psychomotor skills. Its TVET content was actually a problem. Assignments were heavily theoretical, thus compromising the quality of skills gained.

6.2.5.2 Practical assignments not well constructed

The results in Table 5.8, mean 2.47 indicate that most lecturers disagreed that practical assignments were not well constructed to reflect the TVETisation thrust. According to section 5.3.7, principal 4 noted that many lecturers theorise practical assignments and all four required assignments become theoretical instead of two being based on theory and two being practical. This was contrary to lecturers' views who thought they were competent in crafting practical assignments that reflect a TVETisation thrust.

6.2.5.3 Quality of industrial attachment administration

According to the findings in section 1.3.5, one year-long industrial attachment was part of continuous training that sought to orient students to the real world of work during skills training. The results in Table 5.9, mean 2.06 revealed that a few lecturers agreed that industrial attachment is well supervised as indicated by a mean less than 2.5. On the quality of industrial attachment, results (Table 5.17, mean 2.57) revealed that students' rate of making mistakes was quite acceptable. In the same table, results revealed that students' practical knowledge of the job is acceptable. While lecturers felt that industrial attachment was not well supervised, company training managers viewed the competences of students on industrial attachment as within acceptable limits.

6.2.5.4 NAMACO's role in curriculum evaluation

Knowledge of the backward design model of curriculum development helps polytechnic principals to anticipate and forecast the expectations of industry (cf. 2.5.5.4.) In the case of Zimbabwe, National Advisory Council (NAMACO) studies what skills Zimbabwean industries require. The results in Table 5.9, mean 2.45, revealed that NAMACO is not very effective in evaluating curriculum. This was corroborated by the NAMACO conference of December 2013.

6.2.5.5 ITTD's role in curriculum evaluation

Section 2.4.2.2.2, last paragraph explains that Industrial Trade Testing Department (ITTD) measures industrial skills in levels that range from level 4 to level 1, in

ascending order of complexity. Level 4, often called class 4, is the elementary level and may not correspond to a full year of study. ITTD is not consulted in polytechnic curriculum reviews and has no input in the curriculum offered by polytechnics. The empirical evidence in Table 5.10, mean 2.27 reveals that ITTD is not very effective in evaluating curriculum.

6.2.5.6 CRADU's role in curriculum evaluation

Section 2.6.3of Chapter 2 explains that Curriculum Research and Development Unit (CRADU) in the Ministry of Higher and Tertiary Education, Science and Technology Development use National Manpower Advisory Council (NAMACO) to determine polytechnic curriculum content. The empirical evidence in Table 5.9, mean 2.02 reveals that CRADU was not very effective in articulating curricula standards well. If such an organisation fails to articulate curriculum standards competently, then this agrees with one principal who noted that, "The major challenge with CRADU is that of lack of adequate consultation among stakeholders to come up with clear standards."

6.3 SUMMARY OF QUALITATIVE FINDINGS

Chapter 5 reported the empirical findings from the quantitative component of this thesis. This section discusses the results that were generated from the qualitative part of the study. As has been stated in Chapter 5, evidence was gathered from interviews with five principals. In order to make sense of the mass of interview data, empirical findings that are presented in this section are analysed by relating them to the following specific research questions:

- What are the principals' roles in crafting polytechnic curriculum strategy?
- What leadership capacities do polytechnic principals require to implement curriculum strategy?
- What barriers are experienced by principals in implementing curriculum strategy in Zimbabwean polytechnics?
- What metrics or standards measure curriculum strategy in Zimbabwean polytechnic education?
- How can the implementation of polytechnic curriculum strategy be enhanced?

The following sections outline how qualitative findings are structured. Section 6.2.2 outlines how interviewees understood their principals' roles in crafting polytechnic curriculum strategy. Section 6.2.3 discusses the extent to which their strategic leadership skills influence the implementation of curriculum strategy. Section 6.3.4 highlights specific challenges faced by principals regarding the effective implementation of curriculum. Section 6.2.5 outlines the implementation of curriculum strategy. Section 6.2.6 describes what metrics or standards measure curriculum strategy in Zimbabwean polytechnic education.

6.3.1 Principals' Role in Crafting Curriculum Strategy

Most principals were able to explain their roles with explicit detail. The interview data were corroborated by lecturers who agreed that principals were competent in their roles with an average mean of 2.60.

6.3.2 Strategic leadership Skills and the Implementation of Curriculum Strategy

The interview data showed that principals possessed strategic leadership skills that enabled them to implement the curriculum strategy. Most of them explained that the major hindrance was the heavy hand of CSC that interfered with their implementation of curriculum strategy. This explained why most lecturers only agreed with the idea that principals possessed strategic leadership skills that enabled them to implement the curriculum strategy leading to an average mean of 2.47. Although, this mean falls short of the 2.5 threshold, the difference is too little to be really meaningful. Generally, qualitative findings corroborated quantitative findings.

6.3.3 Challenges Faced by Principals in the Implementation of PCS

There was a clear consensus among the interviewed principals that lack of resources posed a major challenge in the effective implementation of polytechnic curriculum strategy. Another challenge was that of failing to send lecturers for industrial attachment so that their knowledge would match that of returning students. There was congruence between lecturers' quantitative findings and qualitative

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findings from interviews. Lecturers believed also that principals did face some challenges in polytechnics.

6.3.4 Implementation of Polytechnic Curriculum Strategy

Most principals highlighted that they were able to implement curriculum strategy as demonstrated by the level of pass rates they enjoyed though their desires were hampered by the challenges explained above. They stated that principals were the most important intangible asset any polytechnic could have as demonstrated by literature on intellectual capital (cf. 3.7.2). Quantitative findings from the lecturers' views produced a mean of 2.12, which indicated that most lecturers did not agree that principals effectively implemented PCS. According to principals, enjoying a high pass rate meant that they were able to implement polytechnic effectively, while lecturers did not view high pass rates as testimony of principals' competence in curriculum implementation.

6.3.5 Standards for Measuring Polytechnic Curriculum Strategy

Quantitative findings corroborated qualitative findings on the quality of the standards generated by NAMACO and CRADU. All principals agreed that there was inconsistency in the formulation and implementation of standards. They noted that there was lack of consultation among key stakeholders; hence polytechnics came up with their own standards that were out of sync with industry needs. Principals unearthed the laxity and inactivity of NAMACO, a body that had abdicated its mandate of advising the Minister of Higher and Tertiary Education, Science and Technology Development on manpower shortages so that polytechnics can increase training capacity in those identified areas (cf. 2.4.2.2.2 & 2.4.2.2.3). Most principals lamented lack of systematic involvement of lecturers who were the key implementers of curriculum standards. Quantitative results from lecturers generated a mean of 2.33 indicating that most lecturers did not agree that there was adequate consultation among key stakeholders in the formulation and implementation of polytechnic curriculum standards.

6.4 THE INTEGRATION OF QUALITATIVE AND QUANTITATIVE APPROACHES

The overall research question for this thesis is: "What is the role played by strategic leadership in the implementation of polytechnic curriculum strategy?" In order to answer this question, both quantitative and qualitative approaches were employed. The former used statistical analysis to analyse data from polytechnic lecturers, company training managers and students collected through questionnaires, while the qualitative data generated from interviews with principals was analysed using Tesch's open coding method of data analysis. These two studies were conducted almost at the same time, thus this allowed the integration to occur during the stages of data collection and data analysis, as well as in the discussion of the empirical results.

How the quantitative and qualitative approaches were integrated together during the data collection and data analysis stages has been discussed in chapter 4. This section discusses how findings from the quantitative study and qualitative study connected and compared in terms of curriculum strategy implementation.

Quantitative data was analysed through descriptive statistics, factor analysis, correlations and regression analysis. On the other hand, qualitative data analysis from interviews revealed that there were four categories of data generated from the implementation of PCS. These categories are:

- Principals' roles in crafting polytechnic curriculum strategy;
- Strategic capacities;
- Challenges; and
- Metrics or standards used to measure the curriculum strategy.

It can be seen that the categories that seemed to have been generated in the qualitative phase were first identified in the quantitative study, showing that these two studies were framed based on similar ideas. By doing so, evidence generated from the two approaches was easier to compare and cross-check, and achieve the purposes of triangulation and complementarity.

The triangulation evidence was mainly related to empirical results of the quantitative study which showed that principals' actions had an impact on PCS implementation and polytechnic performance. For example, the principal's roles contributed to overall implementation of PCS, they were not the only factor in the PCS implementation process, and the principal's strategic leadership capacities significantly affected the quality of polytechnic graduate produced. Principal's strategic leadership capacities would enable principals to scan the external environment and anticipate what the stakeholders in industry expect in terms of relevant skills.

Likewise, the PCS categories in the qualitative study revealed that principals' roles and strategic capacities could influence lecturer competence and student performance. Additionally, the qualitative data analysis further showed that a principal's performance could directly affect institutional performance. It can be seen that findings from both approaches showed consistent evidence on the importance of the role of principals in PCS implementation.

It was also found out from the quantitative study that the combination of principal's strategic leadership skills, lecturer competence and instructional delivery quality largely explained the variations in student performance more than individual factors. The combination of the intangible elements of curriculum strategy better explained the variation in polytechnic curriculum implementation performance.

Similarly the findings from the qualitative study indicated that principals emphasised the combined or balanced effects of PCS categories on institution performance. Most principals noted that the combined effects of their roles, strategic capacities and the quality of curriculum standards were more important in producing a graduate whose skills would be accepted by industry. The evidence provided by both the qualitative and quantitative studies supported the importance of resource integration highlighted by the Resource-based View theory. Resources for lecturers' instructional delivery and students' training equipment should be acquired both adequately and timeously to improve the competences of the graduate.

The findings from the quantitative study on poor curriculum standards by CRADU were confirmed by the qualitative study. According to lecturers, CRADU standards were not effective in measuring curriculum strategy (Table 5.10, mean 2.33). Most principals agreed with lecturers on this, and further stated that lack of adequate consultation among stakeholders led to poor standards. Therefore, it can be seen that the quantitative and qualitative studies were closely integrated with each other in terms of providing confirmation of some important findings.

6.5 CONCLUSIONS

This research study provided an insight into the principals' role in the implementation of PCS. From the research, it is evident that the principal is one of the indispensable implementers of the PCS, including lecturers, HEXCO, CRADU and NAMACO (representing industry and the Ministry of Higher and Tertiary Education, Science and Technology Development). Finally, some of the important conclusions that can be drawn from the study are discussed below.

Firstly, the findings of the study have revealed that the implementation of PCS is enhanced by such factors as human capital development, social capital development, and development of structures, processes and controls for the organisation and effectiveness of HEXCO internal and external assessment.

Secondly, the study has shown that the principals are not empowered (not autonomous) to:

- exercise their strategic skills in such important factors as crafting the proper strategic direction in polytechnic curriculum implementation;
- effectively utilise the external environment to benefit curriculum implementation;
- design sound incentives for well performing workers;
- mobilise instructional and industrial attachment resources; and
- effectively develop human capital development (through manpower development leave), social capital development and development of structures, processes and controls for the organisation.

Thirdly, the findings of the study have revealed that the effectiveness of PCS implementation is impeded by many challenges, which include: a lack of basic instructional resources and technology, lack of incentives for lecturers and lack of consultation among key stakeholders (NAMACO, CRADU and HEXCO) in crafting industry-related standards.

Fourthly, the findings of the study have also revealed that there is heavy emphasis on theoretical assignments at the expense of practical assignments (psychomotor domain). Industrial attachments are not well supervised; there is no synchronisation of standards by NAMACO, CRADU and ITTD. These standards fall short of industry expectations as shown by participants in the NAMACO conference in December, 2013.

6.6 RECOMMENDATIONS

The previous sections have discussed key findings of this thesis in relation to the principals' role in PCS implementation. This section is devoted to the elucidation of the recommendations in accordance with the main research aim and the last of the five research questions of this study. The concluding research question of this study states thus: What recommendations can be made, in the form of guidelines, to enhance the effective implementation of PCS?

The recommendations made in this section are a triangulation of the related literature study, the empirical research results and conclusions. They are, however, organised in two categories: recommendations for principals, and recommendations for the Ministry of Higher and Tertiary Education, Science and Technology Development.

6.6.1 Recommendations for Polytechnic Principals

In this category of recommendations, the study provides guidelines with a view to improving the quality of managing polytechnic curriculum strategy (PCS). The recommendations follow:

6.6.1.1 Facilitate staff development programmes for lecturers

The empirical investigation revealed that principals need to be responsive to best practices in order to ensure quality in instructional delivery. This is achieved through staff developing lecturers under the auspices of the CSC professionalisation policy (cf. 3.6.4.5). Therefore, principals should fully implement the CSC professionalisation policy. This may be achieved through continuously benchmarking with other sister organisations to achieve best practices in developing quality lecturers. Benchmarking is the backbone of the process of identifying, studying and implementing outstanding practices (Thompson & Strickland, 2010: 362).

6.6.1.2 Organise resources for instructional delivery

According to the findings in sections 3.6.4.5 and 3.9, an organisation's ability to marshal the resources to support new strategic initiatives and steer them to the appropriate organisational units, has a major impact on the strategy execution process.

An organisation's ability to marshal the resources to support new strategic initiatives and steer them to the appropriate organisational units has a major impact on the strategy execution process (Thompson, Strickland & Gamble, 2010: 358). This was not the case with most polytechnics in Zimbabwe. The empirical investigation revealed that principals are effective in organising adequate resources for instructional delivery (cf. 3.6.4.7). This study recommends that principals should prioritise the organisation of adequate instructional resources if PCS implementation is to succeed.

6.6.1.3 Supervise lecturers on academic issues

Principals should ensure that all programmes and activities are well supervised. This can be achieved through the process of supervision which calls for considerable personal contact between the lecturer and the instructional leader (cf. 3.9). As principals play the role of instructional leadership and supervision in the implementation process, it is prudent for them to understand curriculum theory from curriculum specialists such Paulo Freire, Basil Bernstein, Susan Noffke, William

Pinar, Michael Apple, Herbert Kiebard, Catherine Cornbleth, Jonathan Jansen, Peter Kallaway, Anonia Darder, Peter McLaren, Henry Giroux and many others, so that managing polytechnic curriculum is made easier (cf. 2.5; 2.7&2.8). This study strongly recommends that the outcomes of the Results-Based Management model (RBM) of the Civil Service Commission performance appraisal be implemented religiously (cf. 3.9.1). However, the outcomes of the RBM may be supplemented by other methods such as in-service training for lecturers (cf. 2.6.5.). This may strengthen the quality of lecturers' competence in implementing PCS.

6.6.1.4 Incentivise lecturers to improve performance

Rewards should also be linked to specific outcomes necessary to effectively implement the PCS, and must focus on rewarding managers and employees on all levels of the organisation for taking action and for achieving the desired results (Hrebiniak, 2005: 189).

Principals should be sensitive to the needs of the lecturers if effective curriculum implementation is to occur. The collected data revealed that the sampled principals did not remunerate lecturers adequately (cf. 5.2.2, Table 5.5). This study recommends that principals should incentivise their lecturers adequately from their own funding initiatives. The CSC and Ministry of Higher and Tertiary Education, Science and Technology Development head office are not negatively disposed to approving sound incentive packages for lecturers that are within polytechnic income generation capabilities. In this regard, the researcher submits that there should be a deliberate and progressive effort to improve their salaries to the level of state university lecturers, who are paid up to US$1500 per month in order to meet their basic needs and curb the brain drain.

6.6.1.5 Upgrading skills of lecturers

This study established that the lecturers' skills were not adequately upgraded (cf. 5.2.2, table 5.5 and cf. 6.2.1.6) as there is little evidence of internal efforts by principals, save for CSC manpower development leave (MDL) slots that are allocated to each polytechnic (cf. 3.6.4.3). These CSC MDL slots are not enough to allow each lecturer's skills to be upgraded and meet the curriculum standards of the

industry. This study recommends that principals should come up with a blueprint that seeks to upgrade lecturers' skills including implementing the CSC professionalisation policy. This blueprint may take the form of allowing lecturers permission to attend degree courses at universities that offer block release opportunities during school holidays. The CSC then may refund part of, or whole tuition fees of lecturers who will have successfully completed their degree courses.

6.6.2 Recommendations for the Ministry of Higher and Tertiary Education, Science and Technology Development

The present study revealed that principals, on their own, lacked capacity to address several challenges that they faced (cf. 6.2.3.1; 6.2.3.2; 6.2.3.3 and 6.2.3.4). Therefore, the Ministry of Higher and Tertiary Education, Science and Technology Development (MHTESD) should provide relevant support that may enhance the effectiveness of the principals in the implementation of PCS. To this end, this study makes the following recommendations.

6.6.2.1 Provide specific training for principals

Emphasis on the notion of professional development in education should not be the preserve of the lecturers alone in instructional delivery skills but should embrace principals, particularly with regard to their role in managing polytechnic curriculum implementation. Ideally, the training should encompass specific curriculum development and implementation topics, and offered at least twice per year. Such training should be expansive in content and be focused on several aspects, including:

- Curriculum planning in polytechnic education (cf. 2.3; 2.5; & 2.7);
- Strategies for improving curriculum effectiveness (cf. 2.6)
- Implementation of curriculum strategy (cf. 3.6.4).
- Curriculum leadership (cf. 3.8)
- Supervision of polytechnic personnel (cf. 3.9)

The training of principals in some of these key areas will demystify the fact that when one has passed a Masters degree in Education Management, then one possesses all the skills needed to manage polytechnic curriculum effectively. It is further recommended that the training of principals should be outsourced to education faculties of the recognised Zimbabwean, regional or international universities or other reputable training institutions.

To incentivise the polytechnic principals, the training programmes should carry credits towards a formal degree qualification, and they should also be endorsed by the Zimbabwe Council for Higher Education (ZIMCHE) so as to enable the principals to earn the Professional Development Points. Similarly, the MHTESTD should come up with mechanisms that will make compulsory, a week-long induction course for the newly appointed principals. Training on managing the implementation of a curriculum effectiveness strategy, according to the above aspects, should form a central feature of the principal induction programmes and not be peripheral or overlooked as revealed in the present study. This may overcome the possible chances of failure emanating from incompetence and inexperience.

6.6.2.2 Align polytechnic curriculum standards with industry needs

NAMCO's main mandate is to advise the Minister of Higher and Tertiary Education, Science and Technology Development (HTESTD) on Zimbabwe's manpower needs (cf. 2.4.2.2.4) and how best to rectify any skills gap (Nziramasanga, 1999: 421). It is after the diagnosis of the skills in the labour environment in Zimbabwe that NAMACO can then advise the Minister on the skills required by industry. The skills gap can then be closed by training students in polytechnics. In this regard this study recommends to the Minister that NAMACO should continuously monitor the levels of skills in the Zimbabwean industry and timeously feed CRADU with accurate and up-to-date skills information.

It is further recommended that CRADU should supply polytechnic principals and the curriculum committees with curriculum standards that emanate from NAMACO's findings of the skills gap in industry. This would avoid discord between CRADU and NAMACO on curriculum standards and industry expectations.

Higher Education and Examinations Council (HEXCO) evaluates polytechnic curriculum in conjunction with polytechnic principals and lecturers as examiners. This study recommends that the changes in the curriculum standards that HEXCO should be in line with CRADU standards. There should be a nexus between NAMACO and CRADU, and between CRADU and HEXCO because these organisations work towards achieving the same goal of producing a competitive and skilled graduate. Examination question papers set by HEXCO should reflect a flow of harmony from industry through NAMACO right to the polytechnic examination room.

6.7 CONTRIBUTIONS OF THE STUDY

This thesis has adopted a mixed methods research approach in studying the principals' role in the implementation of curriculum strategy in Zimbabwean polytechnics. As has been noted in chapters one and four, mixed methods research, as a methodology, has attracted increasing attention in social sciences. This thesis contributes to the methodological development in the area of education management research by providing a practical example of how the combination of quantitative and qualitative approaches can offer a more comprehensive picture of the PCS implementation.

Integration is an important indicator that distinguishes mixed methods research from other mono-method studies, which reflect the extent to which researchers have exploited the potential of a mixed methods approach (O'Cathain, Murphy & Nicholl, 2007: 155). However, as has been discussed in Section 4.3.5.1 of Chapter 4, despite the popular application of mixed methods research in social sciences, there is a problem that quantitative and qualitative data and findings appear not to be substantially integrated in many studies that use multiple methods (Bryman, 2007: 16; Woolley, 2009: 14). One of the main factors that currently prevent integration from being carried out in mixed method studies is the absence of exemplars (Woolley, 2009: 15). This thesis makes a contribution in this regard. It provides an example of how the quantitative and qualitative data can be integrated at all stages of the project in order to achieve maximum integration in a concurrent mixed methods research. At the early stage of designing the project, the rationale for using

mixed methods research was explained (cf. 4.3.3.1), and the central research question was divided into five specific questions to be answered by not only singular methods but also the integration of the two approaches (cf. 4.3.5.1).

During the data collection process, the qualitative interviews assisted the quantitative study in the way of identifying and understanding PCS implementation variables (cf. 5.2.2), while the variables used in the quantitative study were useful to formulate interview questions and design the interview guide. At the stage of analysing data, interview experience helped the researcher to elucidate issues raised in the quantitative phase of the study (cf. 5.3.3), and quantitative variables were used to help the qualitative data analysis in terms of enhancing the researcher's theoretical sensitivity, identifying codes, and labelling concepts (cf. 5.3.3). Finally, at the stage of reporting the results, findings from the quantitative and qualitative approaches were connected and compared. On the one hand, the study achieves evidence triangulation and enhances the validity of the overall project. On the other hand, it overcomes some limitations of using singular methods, and has the advantage of complementarity (cf. 5.3.9).

This thesis also contributes to the literature on implementation of PCS and improves our understanding of the role of strategies of managing PCS implementation. Firstly, it presents empirical evidence on the relationship between polytechnic graduate competences and industry expectations. This is because the literature on the relationship between polytechnic graduate competences and industry expectations is very scarce. Secondly, there is a dearth of research on the relationship between Zimbabwean polytechnic curriculum and the stakeholder standard development units such as CRADU and NAMACO, and research on the value-relevance of human capital information in public institutions such as polytechnics. This thesis contributes to the extant knowledge of PCS by investigating the impact of curriculum metrics on the industry product quality perspectives. Moreover, previous research on TVET or polytechnic curriculum development tended to focus on theories. Only a few studies have focused on TVET quality assurance. This thesis makes a contribution in this regard with the results generated from the views of principals, students and company training managers. Therefore, this thesis draws a comprehensive picture of PCS.

Policy makers (Government, NAMACO and CRADU) should continuously keep abreast with robust, critical curriculum theorists such as Pinar, Apple, Freire, Bernstein, Giroux and others who can make a strong contribution to polytechnic quality graduate and hence manufacture quality products in industries. This thesis contributes to the PCS strategy literature by developing a knowledge-based PCS process, which is helpful to help principals, lecturers and students in better understanding the curriculum implementation process, and designing a relevant blueprint to make curriculum implementation more relevant to industry. Below is a PCS model that can be used to address the main problem of study.

6.7.1 Derivation of a Polytechnic Curriculum StrategyImplementationModel

Figure 6.1: The polytechnic curriculum strategy implementation model

Zimbabwean Industry
- Markets
- Competitors
- Nature of industry
- External Environment

Government Influence
- NAMACO
- CRADU
- Funding of polytechnics

HEXCO
(Implementer of curriculum standards)

Polytechnic principal
- Knowledge of curricula and critical pedagogy theorists such as Paulo Freire, Peter McLaren, Henry Giroux, Michael Apple, William Pinar, Basil Bernstein, Herbert Kliebard and Antonia Darder
- curriculum leadership skills;
- Competency-based education system
- Strategic leadership and SWOT analysis of industry needs;
- participating in NAMACO and CRADU meetings in identifying industry needs and improving curricula;
- Strategic Implementation of curriculum standards;
- Continuous initiation of reviewing of CRADU standards
- Implementing CRADU standards through HEXCO

The above model brings in some issues to be resolved. The principal has to be knowledgeable of curriculum theory (for example, politics of curriculum, the currere approach, action research, reconceptualisation of curriculum, Bernstein's and Freire's ideas on critical pedagogical discourses), if his or her contribution to PCS is to be meaningful. The model summarises the ideal interaction among industry, government (CRADU and NAMACO) and polytechnics. According to the research findings, this nexus seems lacking and the adoption of this model may close the gap. Originally, NAMACO has the mandate of advising the Minister of Higher and Tertiary Education, Science and Technology Development on current industry needs. In turn CRADU formulate curriculum standards in line with NAMACO findings. HEXCO, as an examining body, implements CRADU curriculum standards. This scenario is weak because it leaves the principal with a role of invigilating and supervising the administration of HEXCO examinations. The above model places the principal at the core of coordinating the strategic activities of coming up with the PCS.

The model suggests that the principal be proactive and strategic in initiating curriculum reviews, where he or she participates in NAMACO and CRADU meetings as he or she is privy to industry needs through students who are supervised on industrial attachment or on the job education and training. The principal does not have to wait for NAMACO to approach industry but will be part of NAMACO and CRADU to make sure that standards are formulated in line with resolutions emanating from NAMACO and industry meetings.

6.8 SUGGESTIONS FOR FURTHER RESEARCH

The previous section discussed the contribution that this thesis makes and some limitations that it has. This section outlines several avenues for future research and concludes the thesis.

- An investigation of the reasons why the differences exist in the implementation of polytechnic curricula by polytechnic principals;
- A study of the role of Industrial Trade Testing Department (ITTD) and National Manpower Advisory Council (NAMACO) in the implementation of polytechnic curricula;

- A comparative study of the quality and performance of polytechnic students by trade (Engineering, Information and Communication Technology, Accounting or Marketing) in Zimbabwean industries.

- An investigation into the application of a 360 degree perspective (Customers, students, industrialists, principals and lecturers, Ministry officials) for evaluating polytechnic curriculum standards; and

- Last but not least, future research on the PCS implementation may want to use additional performance measures (not only HEXCO or CRADU standards), such as market-based variables. The basket of PCS implementation performance indicators should be widened to include industry participation. Future research should incorporate industry personnel in the process of trade testing as these are people who will work with the qualified journeymen.

6.9 CONCLUSION

The findings and empirical investigation only pertain to principals, students and company training managers who participated in the study. However, findings from this research suggest that principals, though not the only agents of PCS implementation, have a significant role in the overall PCS implementation process. Lecturers, government bodies such as CRADU, HEXCO and NAMACO also play a significant role in PCS implementation. Finally, it is hoped that PCS implementation research will make a strong contribution to effective PCS implementation and improve quality of industry products.

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APPENDIX A: REQUEST FOR PERMISSION TO CARRY OUT RESEARCH IN POLYTECHNICS

MEMORANDUM

To: Chirapa Zvamaida

        Ministry of Higher and Tertiary Education, Science and Technology Development

From: Mazani W

        Doctoral Student, UNISA, South Africa.

        Harare Polytechnic Lecturer

Date: 8 June, 2013.

Subject: **Request for permission to carry out research in polytechnics**

I am a doctoral student in the College of Education, Department of Educational Leadership and Management at University of South Africa under the supervision of Dr Mapheleba Lekhetho, +27797448090, lekhem@unisa.ac.za. My research study will investigate **the principals' role in the implementation of polytechnic curriculum strategy in Zimbabwean polytechnics**. I am requesting permission to carry out my doctoral research data collection in selected polytechnics sampled randomly in my study. I will attach confirmation letter of carrying out this research from my supervisor.

The results of this research will give principals important information about leadership in the context of **effective implementation of polytechnic curriculum**. The results of this study will respect all research ethics such asinformed consent, anonymity, privacy, confidentiality and above all, debriefing. No respondent or institution will be identified by name and all contributions will be kept secret for purposes of this research only. Respondents will be given choice of withdrawing even in the middle of participation if they so wish. Principals will be interviewed with each interview taking an average of 10 – 15 minutes and selected lecturers will complete questionnaires. For any queries or clarifications about my research, I refer you to my supervisor referred to above. A copy of the thesis on completion will be donated to the Ministry of Higher and Tertiary Education library.

Yours faithfully,

Mazani Wilfred

APPENDIX B: PERMISSION TO CARRY OUT RESEARCH IN ZIMBABWEAN POLYTECHNICS

APPENDIX C

All official communications should be addressed to "The Secretary" ------------	**ZIMBABWE**	Reference: E/7/6

All official communications should be addressed to
"The Secretary"

Telephone: 795891-5, 796441-9, 730055-9
Fax: 733070
Telegraphic address "EDUCATION"

Reference: E/7/6

SECRETARY FOR HIGHER AND TERTIARY EDUCATION

P.O. Box CY 7732
Causeway

HARARE

3rd July 2013

Mr. W. Mazani
Harare polytechnic
P. O. Box CY 407
Causeway

Dear Mr. W. Mazani

REQUEST FOR PERMISSION TO CARRY OUT AN ACADEMIC RESEARCH ON "THE ROLE OF PRINCIPALS' STRATEGIC LEADERSHIP CAPACITIES IN THE IMPLEMENTATION OF CURRICULUM EFFECTIVENESS STRATEGY IN ZIMBABWEAN POLYTECHNICS"

Reference is made to your letter, in which you request for permission to carry out an educational research on *"The Role of Principals' Strategic Leadership Capacities in the Implementation of Curriculum Effectiveness Strategy in Zimbabwean Polytechnics".*

Accordingly, be advised that the Head of Ministry has granted permission for you to carry out the research in *Zimbabwean Polytechnics.*

It is hoped that once completed your research will benefit the Ministry. Accordingly, it would be appreciated if you could supply the Office of the Permanent Secretary with a final copy of your study, as the findings would be relevant to the Ministry's strategic planning process.

MJ Chirapa
for: PERMANENT SECRETARY

APPENDIX C: POLYTECHNIC PRINCIPAL INTERVIEW GUIDE

1) What are your roles as a principal in effectively implementing polytechnic curriculum strategy?

2) In your own view, to what extent is each role effective in the effective implementation of curriculum?

3) How do your strategic leadership skills influence the implementation ofcurriculum strategy?

4) As a principal of a polytechnic, what specific challenges do you face regarding the effective implementation of curriculum?

5) In what specific areas do you think your leadership style contribute towards the overall pass rate?

6) What metrics or standards measure curriculum strategy in Zimbabwean polytechnic education?

7) How effective are each of these standards in measuring polytechnic curriculum strategy?

8) How valid and reliable are the course work and examination weightings of 60% and 40% respectively, in light of skills training in TVET.

9) How effective is SDERU in crafting and implementing curriculum standards required by industry?

10) How effective is NAMACO in crafting and implementing curriculum standards required by industry?

APPENDIX D: POLYTECHNIC LECTURER QUESTIONNAIRE (PLQ)

Thank you for taking time to complete this questionnaire. The questionnaire consists of **SIX** sections. Please mark the appropriate box with an (X)

SECTION A: DEMOGRAPHIC DATA

A1.State your

department...

A2Gender

Male	1
Female	2

A3Age

Under 30 years	1
30 – 35	2
36 – 39	3
40 – 44	4
45 years and above	5

A4Which one of the following **_best_** describes your primary job title ?

Senior lecturer	1
Principal lecturer	2
Lecturer in charge	3
Head of department	4
Head of division	5

A5Which one of the following **_best_** describes your highest qualification ?

National Certificate	1
National Diploma	2
Higher National diploma	3
Bachelors degree	4
Masters degree	5

Note: Do not include incomplete qualification.

SECTION B: PRINCIPALSHIP ROLES.

Please respond to each of the following statements on the extent to which you are agree or disagree. Use the following scale.

A – Agree, AS – Agree Strongly, U-Undecided, DA-Disagree, DAS-Disagree Strongly

How effective are polytechnic principals in executing their roles that contribute towards effective implementation of polytechnic curriculum strategy?	A 1	AS 2	U 3	DA 4	DAS 5
1. Facilitating staff development programmes for lecturers e.g. encouraging lecturers to undergo Zimbabwe FurtherEducation Trainers Certificate or Diploma.	1	2	3	4	5
2. Organising of resources for instructional delivery	1	2	3	4	5
3. Supervising lecturers on academic issues, e. g. planning, scheming, quality of practical assignments, etc.	1	2	3	4	5
4. Initiating curriculum development reviews in line with industry needs	1	2	3	4	5
5. Incentivising lecturers to improve performance	1	2	3	4	5
6. Attending to Human Resources issues that affect lecturers, e. g. taking of vacation leave	1	2	3	4	5
7. Upgrading skills of lecturers in line with changing industry needs.	1	2	3	4	5
8. Communicating with all departments effectively though memos and meetings on curriculum issues	1	2	3	4	5

SECTION C: STRATEGIC LEADERSHIP CAPACITIES

To what extent do principals possess the following *strategic leadership capacities* that contribute towards effective implementation of polytechnic curriculum strategy?	A 1	AS 2	U 3	DA 4	DAS 5

1. Offering long range, futuristic (strategic) direction in polytechnic curriculum implementation	1	2	3	4	5
2. Dealing with rapidly changing external environment that affects curriculum implementation strategies.	1	2	3	4	5
3. Creating a competitive advantage over similar colleges in attracting lecturers and students.	1	2	3	4	5
4. Implementing properly designed incentives for individual, well performing workers.	1	2	3	4	5
5. Allocating adequate instructional and industrial attachment resources timely..	1	2	3	4	5
6. Developing human capital	1	2	3	4	5
7. Developing social capital[1]	1	2	3	4	5
8. Developing structures, processes, controls and core competencies for the organisation.	1	2	3	4	5
9. Initiating and implementing polytechnic curriculum change and innovation.	1	2	3	4	5
10. Effectively evaluating polytechnic curriculum through HEXCO examinations, both internal and external assessments.	1	2	3	4	5

[1]Social capital "...involves the relationship inside and outside the organisation that help it to achieve tasks and create value for customers and stakeholders" (Hitt, *et al.*, 2007: 389).

SECTION D: BARRIERS TO POLYTECHNIC CURRICULUM STRATEGY IMPLEMENTATION

To what extent is each one of the following a _barrier_ to the effective implementation of polytechnic curriculum strategy?	A 1	AS 2	U 3	DA 4	DAS 5
11. The curriculum strategy is not effectively ***communicated*** to the lecturers	1	2	3	4	5
12. The staff members ***understand*** the curriculum strategy	1	2	3	4	5
13. The principal ***is limited in providing strategic direction*** to the institution	1	2	3	4	5
14. Staff members are not well motivated	1	2	3	4	5

15. Scarce resources inhibit effective implementation of polytechnic curriculum.	1	2	3	4	5
16. There is *lack of alignment between the culture* of the organisation and *effective implementation of polytechnic curriculum strategy.*	1	2	3	4	5
17. There is *inability to manage change* effectively in curriculum implementation	1	2	3	4	5
18. Strategies are *poorly or vaguely formulated*	1	2	3	4	5
19. The implementation of polytechnic curriculum strategy *is not effectively evaluated*	1	2	3	4	5
20. Ethical practices *are not well enforced* in polytechnic curriculum implementation	1	2	3	4	5
21. The *core competencies*[2] of the polytechnic are not aligned with polytechnic curriculum strategy.	1	2	3	4	5

[2]Core competences " are capabilities that serve as a source of competitive advantage for an organisation over its competitors" (Hitt*, et al.*, 2007: 17).

SECTION E: IMPLEMENTATION OF POLYTECHNIC CURRICULUM STRATEGY

To what extent does each of the following *contribute positively* to implementation ofpolytechnic curriculum strategy	A 1	AS 2	U 3	DA 4	DAS 5
1. The **structure** of the polytechnic	1	2	3	4	5
2. The **allocation of resources** in the polytechnic	1	2	3	4	5
3. The **culture** of the polytechnic	1	2	3	4	5
4. The **performance management system** in the polytechnic	1	2	3	4	5
5. The **strategic leadership**[2] in the polytechnic	1	2	3	4	5
6. **Training and development** in the polytechnic	1	2	3	4	5
7. The **information systems** in the polytechnic	1	2	3	4	5

[2] Strategic leadership "is the ability to anticipate, envision, maintain flexibility, and to empower others to create strategic change as necessary" (Hitt*, et al.*, 2007: 375).

SECTION F: STANDARDS FOR MEASURING POLYTECHNIC CURRICULUMSTRATEGY.

What HEXCO standards are *__CURRENTLY__* measuring polytechnic curriculum?	A 1	AS 2	U 3	DA 4	DAS 5
1. There is *emphasis* on **theoretical assignments**.	1	2	3	4	5
2. Practical assignments are well constructed to reflect *'TVETISATION'* thrust.	1	2	3	4	5
3. Industrial attachment **is well supervised.**	1	2	3	4	5
4. National Manpower Advisory council evaluates also curricula.	1	2	3	4	5
5. Industrial Training and Trade Testing Department (ITTD) also evaluates polytechnic curricula	1	2	3	4	5
6. Curriculum Research and Development Unit (CRADU) articulates curricula standards very well.	1	2	3	4	5

APPENDIX E: COMPANY TRAINING MANAGER QUESTIONNAIRE (CTMQ)

Thank you for taking time to complete this questionnaire.

The questionnaire consists of two sections.

Please the appropriate box with an (X).

SECTION A: DEMOGRAPHIC DATA

This section pertains to information that relates to **_YOURSELF_** and **_YOURORGANISATION_** . Please be assured that this information is strictly **_CONFIDENTIAL_** and will not be used to compare groups of respondents.

B1Your gender

Male	1
Female	2

B2Your age category

Younger than 30 years	1
30 – 35 years	2
36 -39 years	3
40 -45 years	4
46 -50 years	5
50 -54 years	6
55 years and above	7

B3Which one of the following **_best_** describes your highest training qualification ?

National Certificate	1
National Diploma	2
Higher National diploma	3
Bachelors degree	4
Masters degree	5

B4 Your job experience?

0 – 5 years	1
6 – 10 years	2
15 years and above	3

SECTION B

This section deals with the extent to which **STUDENT COMPETENCES** displayed during **industrial attachment** matches company profiles in industry.

Please respond to each of the following statements on the extent to which you are agree or disagree. Use the following scale.

A – Agree, AS – Agree Strongly, U-Undecided, DA-Disagree, DAS-Disagree Strongly

How effective are students on **industrial attachment** in executing their duties in industry?	A 1	AS 2	U 3	DA 4	DAS 5
1. Students are punctual at their respective work places.	1	2	3	4	5
2. Students interact well with their superiors.	1	2	3	4	5
3. Students' rate of absenteeism is quite acceptable.	1	2	3	4	5
4. Students' rate of making mistakes is quite acceptable.	1	2	3	4	5
5. Students deal with customers professionally.	1	2	3	4	5
6. Students' practical knowledge of the job is acceptable.	1	2	3	4	5
7. Students use the correct jargon at the work place.	1	2	3	4	5
8. Students seek advice in areas they are not competent in.	1	2	3	4	5

APPENDIX F: QUESTIONNAIRE FOR POLYTECHNIC STUDENTS (PSQ)

Questions

Thank you for taking time to complete this questionnaire. The questionnaire consists of two sections

Please the appropriate box with an (X)

SECTION A: DEMOGRAPHIC DATA

This section pertains to information that relates to **_YOURSELF_** and

YOURORGANISATION . Please be assured that this information is strictly

CONFIDENTIAL and will not be used to compare groups of respondents.

B1Gender

Male	1
Female	2

B2Age category

Younger than 20 years	1
20 – 25 years	2
26-30 years	3
Above 30 years	5

B3Your present Diploma training qualification.

National Diploma	2
Higher National diploma	3

SECTION B

This section deals with the extent to which **_STUDENT COMPETENCES_** displayed during **_industrial attachment_** matches company profiles in industry. Please respond to each of the following statements on the extent to which you are agree or disagree. Use the following scale.

A – Agree,AS – Agree Strongly,U-Undecided,DA-Disagree,DAS-Disagree Strongly

How effective has been your **_industrial attachment_** in executing the duties in industry?	A	AS	U	DA	DAS
	1	2	3	4	5
1. My supervisor insisted on punctuality at my respective work place.	1	2	3	4	5
2. My supervisor interacted very well with me.	1	2	3	4	5
3. I could choose to be absent at short notice.	1	2	3	4	5

4. My supervisor understood very well my rate of making mistakes.	1	2	3	4	5
5. Industrial work is quite similar to what I learn at the college	1	2	3	4	5
6. Our college curriculum does not need to be revised.	1	2	3	4	5
7. My college supervisors always visited me every term	1	2	3	4	5
8. Some customers were not satisfied with my service.	1	2	3	4	5
9. My practical knowledge of the job has been quite acceptable.	1	2	3	4	5
10. I could use the correct workplace language with very little difficulty.	1	2	3	4	5
11. My supervisor has been very helpful in areas I needed advice.	1	2	3	4	5
12. Generally, industrial attachment is NOT useful to my job skills					