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An Investigation into Factors that Affect the Teaching of Technopreneurial and Techno Vocational Skills among Secondary School Students: A Case of Five Secondary Schools in the Northern Central District of Harare Metropolitan Province

Bhebhe Ruth K.
Educationist, Ministry of Primary and Secondary Education, Government of Zimbabwe, Zimbabwe
Bhebhe Thomas B.
University Registrar, Chinhoyi University of Technology, Zimbabwe
Nikisi Denis
Director, Graduate Business School, Chinhoyi University of Technology, Zimbabwe

Abstract:
Zimbabwe has the highest literacy rate in Africa but it also has one of the highest unemployment rates on the continent according to ILO (2013). Nziramasanga (1999) convinced Government that the curriculum was too theory based and that needed to be changed but fifteen years later nothing has been done. The study sought to identify factors that inhibit the adoption and implementation of strategic change in the secondary education system to embrace and prioritize the teaching of technovocational subjects or practical subjects in Zimbabwe given the high unemployment problem among youths who constitute 60% of the population according to Zimbabwe Statistical Agency (2012).

The research was premised on the grounded assumption that if students were to be equipped with technopreneurial and technovocational skills during their days of full-time schooling, there would be reduction in the unemployment rate due to the spill-over benefits of self-employment skills which would also reduce social vices such as thefts, hooliganism, violent crimes, drug abuse and prostitution among youths. The findings of the study will be indispensible to all educationists, sociologists, economists, and politicians who have the youths at heart.

The study was basically a Scientific Research survey which used questionnaires and face to face interviews to collect data from teachers, students, and School Heads in five Secondary Schools in the Northern Central District of Harare Metropolitan Province. The sample size was 150 Secondary School students drawn from Form 3 and Form 4 classes, 75 Secondary School teachers and 3 School Heads all drawn from the five Secondary Schools.

The study singled out several factors that inhibit the adoption of the strategic change of introducing technovocational and technopreneurial education in secondary schools. Lack of financial support to buy required materials in Secondary Schools and teachers who lacked the requisite knowledge to teach technopreneurial and technovocational skills in a manner that motivates students to like the subjects were some of the factors singled out by the study. It was also established in the study that students did not like practical subjects because of their labour/ manual work intensive nature. Consequently practical subjects such as Building Studies, Metal Work, Agriculture and Wood Work/ Carpentry and others were shunned by students in preference of other practical subjects such as Computer Science, Food and Nutrition, Technical Graphics and Art which are largely in-door and are light on manual labour. There were no policies which made it mandatory for all students to study technovocational or practical subjects and there are no enforcement mechanisms. The 'old ghost' of the former F2 system which treated practical subjects as inferior still existed among teachers and students and that factor affected the strategic change of producing technopreneurs in Secondary Schools. The study found that students in Secondary Schools did not want practical subjects to be made compulsory. They preferred them to remain voluntary. The study also revealed that students, teachers and School Heads all know the importance of Technovocational or practical subjects in the curriculum, but that has not made them to like the practical subjects. Teachers had limited skills in teaching technopreneurial and technovocational skills to Secondary School

Keywords: *Technopreneurship, youth unemployment, technovocational subjects, practical subjects, technical subjects, strategic change.*

1. Introduction

The common adage, 'If you do not change, change will change you', is a truism which cannot be challenged. Humanity faces change every day and change is part of life. Christeasen (2001) is in agreement when he says, 'The best way to survive change is to be the one creating it . . . Not all change is improvement but without change, there will be no improvement'. Lessons drawn from the Japanese, Chinese, Malaysians, Singaporeans and the Koreans show that they achieved their goals of national development by harnessing the practical talents of the youths while they were still in school (Desai, 2008).

Statistics speak for themselves. According to the Ministry of Education, Sport and Culture Annual Report, 23% of those who sat for O' level examinations passed at least 5 O' level subjects including English language. The report went on to state that 10% of O' level graduates who passed proceeded to A' level while another 7% passed and were absorbed by Colleges such as Teachers' Colleges, Agricultural Colleges, Polytechnic Colleges and Nursing Colleges. What then happened to the remaining 79% of O' level graduates numbering over 160,000 who failed to get 5 O' level passes and the 6% who failed to raise money to proceed to A' level as well as those who failed to get vacancies in colleges? What survival skills do such a large number of O' level graduates possess to be able to face the harsh economic and social environments?

A majority of O' level graduates are armed with theory and a few passes in such subjects as Shona, Ndebele, History, Geography, English, Divinity, French which while important, have no direct bearing to the daily bread and butter dictates that support survival.

Schools have failed to embrace strategic change while parents continue to endure payment of high fees in the hope that children who go through the school system would have a better life. What are the obstacles which Secondary Schools face in trying to respond to the needs of society and Government to impart survival skills in entrepreneurship and business? What are the obstacles which Secondary Schools face in introducing technovocational/practical subjects which are known to change students lives by imparting real hands-on skills which any graduate can use to tame life's harsh economic environment by being self-sustaining through production and creating self-employment?

Schools or even colleges and universities in Zimbabwe, continue to pride themselves of high percentage pass rates yet they continue to churn out half-baked graduates and yet the purpose of education is to develop a complete human being who can use the 3H i.e. the head (to think), the heart (to treat others well and to be a good citizen) and the hands (to do manual work for survival) (Mavhunga; 2002).

2. Background to the Study

The current school curriculum in Zimbabwe has been condemned by the Presidential Commission of Enquiry into Education and Training (1999) hereinafter referred to as the Nziramasanga Commission Report as not being in sync with global best practice in that the education system entrenches poverty in the young Zimbabweans who make up 60% of the population by 'pumping' too much theory into the heads of students for them to pass examinations instead of helping them to pass life.

It is fact that Zimbabwe is sitting on a 'ticking time bomb' as nearly 160,000 O' level school leavers who fail to attain five O' levels are added to the unemployment market every year. It is not desirable for a country with so many opportunities to have so many youths that roam the streets and patronize beer halls for the rest of their lives. It is not good for a country which boasts of the highest literacy rate in Africa of 92% to have educated youths who cannot translate their education for survival given that the great philosopher of education John Dewey once advised that education is not a preparation for life but is life itself (Dewey, 1939).

In September 2000, Zimbabwe became a signatory of the Millennium Development Goals (MDGs) one of which was reduction of poverty, but poverty has been on the increase in Zimbabwe. Available data shows that the Human Poverty Index (HPI) more than doubled to 40.9% by 2006 (Rukuni, 2008).

While in other countries, high literacy rate has had direct correlation coefficient with high standard of life, in Zimbabwe that has not been the case. It was the position of this study that the school system was letting the nation down by teaching or emphasizing an irrelevant curriculum.

In 1990, the UNDP Human Development Index (HDI) ranked Zimbabwe as respectable number 52 out of 177 countries in the world, by 1997 the ranking had slipped down to number 129; by 2005 it had slipped further to number 155 and by 2008 Zimbabwe's HDI ranking had gone down further to number 175 out of 177 countries (UNDP Commission for Africa Report, 2008) This was despite an increase in literacy rate and that is testimony of an education curriculum that does not make people better hence the need for strategic change.

Agriculture remained the largest employer and earner of foreign currency up to 2000 in Zimbabwe and yet only 2% of the Secondary Schools offer Agriculture as one of the practical subjects (World Bank, 2003). Indeed this calls for strategic change. According to the World Bank Report (2008) Zimbabwe's urban population grew by 88% between 1980 and 1990. All urban councils and municipalities failed to cope with housing backlogs, yet only 1% of the urban Secondary Schools offer Building as one of the practical subjects. This study was carried out to find out why there is no urgency to embrace strategic change in schools to make them more relevant and more answerable to the needs of the society and the students they purport to serve.

It was noted that most Secondary Schools offer a wide array of theoretical subjects. Students were taught to revise and internalize notes and pass examinations; but Martin Luther King (Jnr) may have been right when he said, 'Life is not a textbook of theories, but it is a battlefield of realities'. Reality was such that students go to school to acquire survival skills in business and entrepreneurship as well as to learn practical hands-on skills which have a direct bearing in shaping their lives after they leave school. Schools should be at the centre of producing employers and not job seekers.

Woods and Barrow (1975) had this to say:

A very close relationship obtains between theory and practice. It is the view of most studies that theory precedes practice but the two influence one another. Accordingly all human activities of one form or another are based on some theory of one form or another. It is pointless for schools to bank on theory and ignore practice. The two are inseparable. They are two sides of the same coin (p15).

The Nziramasanga Report of 1999 on the need for transformation of the Education System in Zimbabwe noted with concern the scarcity of schools that offered science subjects and survival life skills subjects (practical subjects). This situation was partly blamed on the colonial education system that sought to rail-road Africans into perpetual cheap labourers. However, the Nziramasanga Report also blamed the Government of the independent State of Zimbabwe for perpetuating the colonial legacy and expressed its surprise at the removal of the F2 Schools which offered mainly practical subjects to students. In the face of rising unemployment, the lack of paradigm shift in embracing technopreneurial and technovocational subjects could be surprising given that it has been over 15 years since the Nziramasanga Report was accepted by Government but there has been no strategic change to implement its important recommendations.

3. The meaning of Technoprenership, Technovocational Education and Strategic Change

3.1. Technopreneurship

The word 'technopreneurship' is a new word in English language and its usage has been gaining prominence in the last couple of years. Its wide use can be credited to the Multimedia University in Malaysia where they have gone a long way in making Technopreneurship to be part of the curriculum (Wickham; 2006). Technopreneurship also called 'Techno-entrepreneurship' by other authorities is a compound word which is a derivative of two words; 'Technology' and 'Entrepreneurship'. According to Lee-Pei and Chen-Chen (2008), Technopreneurship refers to the use of technological ideas to come up with entrepreneurial plans and actions. Li-Hua (2007) sees Technopreneurship as turning of technological ideas into raising income for survival and for business. Kirby (2006) defines Technopreneurship as training students to acquire hands-on or practical skills for purposes of making money so that they become self-employed and self-sustaining. Whittaker (2001) of Cambridge University and Bulsara (2008) of National University of Technology in India prefer to call it 'Techno-entrepreneurship'. For better understanding of what technopreneurship means, it might be worthwhile to unbundled the two words that make it - technology and entrepreneurship.

Sahlman (1997) defines technology as science in action. Coyne (2002) sees technology as scientific knowledge used in practical ways in industry for example designing new machines. What is important in the two definitions is that technology is a hands-on or practical field.

Kaplan (2002) defines 'entrepreneurship' when he writes:

The word entrepreneurship comes from the 17th Century French word *entreprendre*, which refers to individuals who undertook the risk of new enterprise… e.g. merchants or adventurers who bore the risk of profit or loss. Today, 'entrepreneurship' is more than mere creation of a business; it also includes generation and implementation of an idea. (p5)

In the context of this research study, technopreneurship was understood as the teaching of practical hands-on skills (technology) and business skills (entrepreneurship) to secondary school students. Thus technopreneurship as a way of life requires training in school as the adage goes, 'Catch them young'.

3.2. Technovocational Subjects

According to Kiernan (2008) these are practical subjects or technical subjects in the Secondary School curriculum. Machingaidze (1998) states that the word technovocational is gaining usage in English language. It is a compound word formed from two words, 'technology' and 'vocational'. Mavhunga (2008) says 'vocation' is a type of work that you believe in, which is useful for your survival. Chung (2008) is in support when she states that a vocation is concerned with skills and knowledge that you need to have in order to do a particular job.

According to the Ministry of Education, Sport and Culture, Secretary's Minute 21/1997, Technovocational subjects (TecVoc Subjects) include Building, Agriculture, Wood Technology, Metal Work, Food and Nutrition, Fashion and Fabrics, Technical Drawing, Technical Graphics, Creative Art, Theatre Arts, Computer Science and many others. These are basically practical subjects. They are acquired largely through hands-on training. The practical subjects help to train manual work and instill dignity of labour among students. They make students enjoy using their hands to come up with artifacts, projects and models leading to perfection of skills to a level where they can market such skills and such artifacts, models or projects to make money for survival and for business.

McAdam and McAdam (2006) note that it is a tragedy that most technovocational subjects are shunned by teachers and students, yet it is such subjects that have a clear capacity to change students lives and turn them to be employers in their own right after years of schooling. Technovocational subjects are part of Government Policy whereupon in the 1980s each school was required to have at least two such subjects on its curriculum but due to the absence of enforcing mechanisms, the subjects slowly started to disappear from the curriculum of most Secondary Schools to an extent that few Schools still offer them seriously.

In this study, the words technovocational subjects, technical subjects and practical subjects will be used interchangeably. Materu (2007) sees that giving relevant education is the first step towards achieving quality education when he writes:

A broad range of factors affect quality of education in institutions including their vision and goals, the talent and expertise of the teaching staff, admission and assessment standards, the teaching and learning environment, the employability of its graduates (relevance to the labour market), the quality of the library and laboratories, management effectiveness, governance and institutional leadership (p8).

Of particular importance in the citation above, is the issue of employability and relevance of the education thus if education is not relevant, we cannot even discuss about whether it is quality education because the first benchmark of relevance will not be there.

3.2.1. Strategic Change

In basic terms, strategic change is about having a strategy to manage business and education in schools is business. Education is provided after a transaction of paying for the delivery of service, and those who deliver it are paid a salary thus education is received at a high cost to the tax-payers, the state, students, parents and society at large. Educationists need to be ethical by striving to give students relevant and not useless or outdated education which is worth or surpasses the cost or price money, time and effort. Mintzberg (2004) sees a strategy as an outline of how a business intends to achieve its goals. Henry (2009) postulates that a strategy is a long-term plan to achieve specific objectives or goals. Strategies are focused on the future and bring about sustained change, and typically require detailed planning and analysis.

Strategic change means changing the organizational focus, vision, mission and objectives (Cameron, 2004). Schools are organizations in their own right. Strategic change can be affected by the changes in the competitive environment, the general business environment or the internal environment of an organization (Henry, 2009).

In a school, strategic change is about formulating and implementing a strategy to achieve the school's vision and mission. According to Henry (2009p11) 'A vision represents the desired state that the organisation (school) aspires to achieve in the future while a mission seeks to answer the question why the organization (school) exists'.

In order to achieve strategic change, an organization has to deploy its human, financial and material resources towards the achievement of the desired change (Hofer and Schendel, 1988). Balogun (2010) noted that planning and implementing strategic change are important aspects of the management role. Mahoney (2002) noted that change is about changing people, not organizations. Organisations change when managers and employees change their ways of doing things. This implies that change is not complete before people change.

- Strategic Change models that can be applied in order to introduce technopreneurship and technical subjects in secondary schools

According to Gilbert (2008) as supported by Fullan (1982) change can be evolutionary (gradual and irreversible), spontaneous (sudden, unpredictable or revolutionary), planned or emergent. Most authorities among them Bishop (1986) and Fullan (1986) advocate for planned change, thus the introduction of technopreneurship as in practical subjects and business training in schools needs to be planned. Carnal (1990) states that planned change is deliberate, and conscious.

It would be naïve for this study to pretend that the road to implementing the strategic change of introducing technopreneurship and technovocational education in schools would be a stroll in the park. It will obviously be difficult given a century of brainwashing which made the Blacks think that white collar jobs were a sign of education, status and success. Some parents especially in former Group A Schools will resist and discourage their children from taking practical subjects given that the parents and students want to imitate the Whites as much as they could both in behaviour, attire, speech, education and living standards.

Kurt Lewin as quoted in Burnes (2009) in his Force Field Analysis argues that by their very nature, people do not want change - The more the effort to change, the more the resistance. Kurt Lewin came up with a model to counter such resistance to change when he advised that for any force to drive change, there is an equal force to resist the change. See *Fig 1* below:

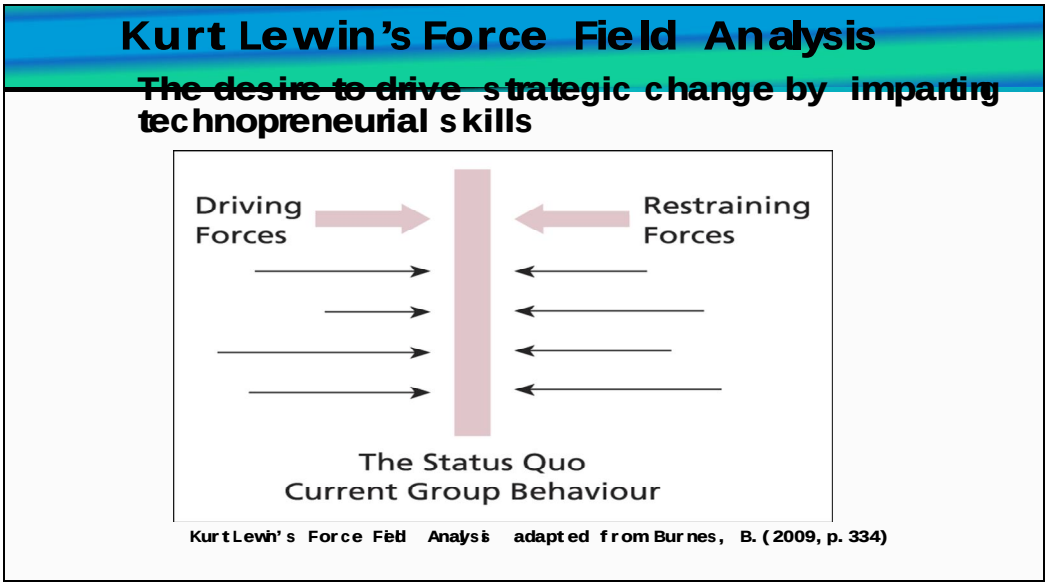

Figure 1: Lewin's Force Field Analysis Change Model

Put simply, in order to successfully push for desired change to happen one must strengthen the driving forces and weaken or neutralize the restraining forces or opposing forces (those forces that resist or inhibit change). Once this is done teachers, students and parents should welcome and support change to a level of being part of it and in so doing technopreneurship or technovocational/ practical subjects will be embraced.

However, Havelock (2001:34) sharply contradicts Lewin when he argues that, 'Many people do not resist change, they resist the way change is introduced'. Ibid (2001) further justifies his contradiction when he postulates that by their nature, people are change machines. They change clothes, change styles, change jobs, change friends etc thus they are excited by changing things to an extent that they even hate routine and may go to the extent of demanding change. Change agents can capitalize on this inborn human appetite for change. Thus the role of every change agent is to ensure that change is introduced with full consultation of those to be affected by it. There must be a buy-in first and for the change in curriculum, the buy-in is already there because people are fed up of the failure of a theory loaded curriculum in solving the problems of poverty.

Cameron and Green (2004), Havelock (2001), Pablos (2010) give the strategies of achieving change as the Rational- Empirical Change Strategy (people need reasons in order to change; bottom-up) and the Political-Coercive Change Strategy (people need to be forced to change; top-down or Shop-floor Approach) and the Normative - Re-educative Change Strategy (mutual cooperation). For strategic change to be achieved in the Zimbabwean school curriculum, this study advocates for the use of all the three strategies.

Lewin as quoted in Burnes (2009) advises that there is need to follow three sequences in introducing change as follows:

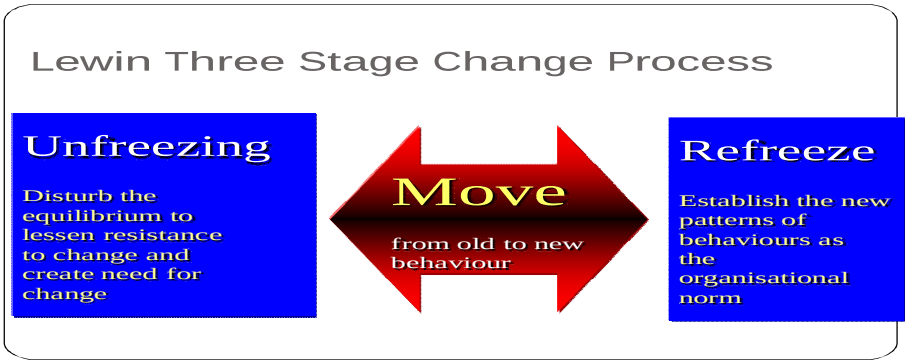

Figure 2: Lewin's Three Step Change Model
Adopted from: Kurt Lewin's Three Step Model (Burnes: 2009)

In the above diagram, 'Unfreezing' is deliberate effort to make the client system dislike the status quo and build appetite, desire and urgency to want to change to a new method. 'Move' is when there is acceptance to change to the new method. 'Refreeze' is institutionalizing the new method making it the preferred new way of doing things. It involves building excitement and guarding against sliding back to the old method. As Ronan (1998:101) stated, 'Most successful organizations (schools) in the next few decades will be those able to adapt to the changing environment'.

4. The Need for Strategic Change in Secondary Education in Zimbabwe

Feresu (2010) states that Secondary Schools have an important mandate to build a strong foundation for citizens. The Zimbabwe of tomorrow is moulded in the secondary schools of today. Mavhunga (2004) says Secondary Schools can make or destroy a nation as they are in charge of moulding the future leaders and citizens of any nation. Secondary Schools are better positioned to create lasting behaviours, attitudes, values and norms which make up the whole person (Kiernan, 2008). Jean Piaget the greatest educational psychologist of all time agrees that at secondary level, students have reached the height of mental or psychological growth which he called the Formal Operational Stage. Their brain at that stage understands issues, grasps them, synthesizes them and relates them to real life situations easily. If a Secondary School values passes in theoretical subjects and shuns practical subjects, such action will be embedded in the minds of its graduates for a life time.

Piaget (1936) says schools have the capacity to mould students to become anything they desire them to be in future. It is the position of this study that if a Secondary School wants to produce politicians, it can put in place deliberate programmes that make students thrilled to take part in politics. School activities, debates, the curriculum, the public speeches and library books can all be moulded along creating a political mind. Similarly, if a Secondary School associates success with getting high passes in theoretical subjects so that students target white-collar jobs after school; that can also be achieved. The tragedy is that most of those who target white-collar jobs after school have little chances to get employed even if they have high passes. That is why this study advocates for a paradigm shift.

Given the clear fact that theoretical subjects have failed the nation by producing 'educated fools' (for lack of a better word) who fail to fend for themselves or to come up with survival self-employment ideas, the time for strategic change in Secondary Schools in Zimbabwe is now.

Chung (2008) states that for any change to take place in the school system, there should be correct leadership. Ibid (2008) underscores the need for School Heads to inspire teachers and students to get excited about the shared vision for practical subjects.

5. The need for Technopreneurship and Technovocational Education to be Part of the Curriculum in Every Secondary School

The advent of ESAP (Economic and Social Adjustment Programme) in Zimbabwe in the early 1990s and its predecessor ZIPREST (Zimbabwe Programme for Economic and Social Transformation) in the late 1990s as instigated by the Breton Woods Institutions (World Bank and International Monetary Fund) as prerequisite for funding, caused excessive retrenchments. Mhone (2000) says the retrenchments caused the booming of the informal sector as Government facilitated the formation of SMEs (Small and Medium Enterprises).

Feresu (2009) notes that while only 10% of industry in Zimbabwe was operational by 2008 due to a decade of economic downturn, most Zimbabweans were self-employed in the Informal Sector. They run their own businesses which range from welding shops, flea markets, carpentry workshops, vegetable stalls, motor spares, tuck-shops and food vendors to mention but just a few. In short, Zimbabweans had embraced the 'Vuka Uzenzele' philosophy (Wake up and do it for yourself).

Manjengwa (2009) says while some SMEs are successful ventures, the rest lack skill and direction. The rest are just hand-to-mouth or fly-by-night pseudo business ventures whose proprietors are commonly called 'dealers' because they can 'steal or sell' anything. This is where Secondary Education in technopreneurship can come into play a transformational role; to teach organized business skills to students, so that when they enter the business world where formal employment opportunities are next to zero they stick to hard work, quality work and business ethics. Kanyenze (2008) advises that school leavers need to turn the non-functionality of industry to their advantage by starting small until they grow big to become credit-worthy to a level that they can re-open the closed industries themselves. If this happens, schools would have become more relevant to the needs of Zimbabwe.

Kwashirai (2009) sees most cases of poverty in Zimbabwe as entrenched in that it was a colonial master plan to make the Blacks poor by settling them in Communal areas where the soil was barren to force the Black men to look for jobs in White owned farms and in White owned industries as a way to feed their families. Even those who looked for jobs, the Whiteman made sure that they remained poor so that they remained on the job where they were ill-treated, underpaid and dehumanized. The situation has largely changed with the coming of the Land Reform Programme which settled most Blacks in former White Commercial Farms. Feresu (2009) noted that most of the 141,000 beneficiaries of the A1 Resettlement Scheme lacked basic skills and this study sees that educating their children in school by teaching Agriculture as a practical subject should be option number one to children whose only asset they know is the land given to their parents by Government. Today's Secondary School going students are tomorrow's parents and land users. Teaching them a relevant practical subjects is a sure way to help them reduce the vicious cycle of poverty.

School leavers do not only need practical subjects to face the dictates of life according to Jenkins (2002), they also need business management skills to know how to plan and multiply the little resources they have for survival. That is why this study focuses on technopreneurship which does exactly that – seizing opportunities and turning their practical and technological skills into money. Kiernan (2008) advises that investing in education is one of the key ways to move out of poverty, but it is not all education that moves people out of poverty.

6. Mythology

The study was in the realms of scientific research taking the form of a survey.

6.1. Population Size

The population under study were teachers and Secondary School students in the five Secondary Schools. School Heads of the five Secondary Schools were involved as key informants.

The idea to settle for three levels of respondents was deliberate as it made triangulation of the responses possible. The table below helps to understand the population understudy:

Name of Secondary School in Cluster 1 of the Northern Central District of Harare Metropolitan Province	Population of School Heads	Population of Teachers	Student enrolment in the Secondary Schools under study (Form 1 to Form 4)
Marlborough High School	1	59	845
Vainona High School	1	61	1176
Mount Pleasant High School	1	62	838
Hatcliffe High School	1	51	1077
Gateway High School	1	64	861
TOTAL	**5**	**297**	**4797**

Table 1: Population of the Northern Central District

Source: Ministry of Education, Sport and Culture District Office Statistics

(Please note that while all the above Schools go up to A' level, this study delimited itself to studying the trends in the Form 1 to Form 4 category)

6.2. Sample Sizes, Sampling Methods and Sampling Techniques

Sampling methods and techniques were a mixture of purposive (only secondary school teachers, heads and students took part), random (picking cards in a hat) and stratified sampling methods (deliberate effort to achieve gender balance). The sampling techniques went a long way in eliminating any traces of bias. Stratified sampling also helped to ensure balance among the respondents where staff and students from various levels had an equal chance to take part.

In this study, the sample was 75 Secondary school teachers selected at a rate of 15 teachers per each of the five Secondary Schools in the Northern Central District of Harare Metropolitan Province. 150 students selected at a rate of 30 students per school made up the sample and the five School Heads of the five Secondary Schools were involved as key informants.

6.3. Data Collection Methods

In this study, self-completing questionnaires were used on students and teachers. Face to face interviews were also used on School Heads as follow-up to unclear responses.

6.4. Response Rate

75 questionnaires were dispatched to teachers in the five Secondary Schools under study and 63 were completed and returned making a response percentage rate of 84%. There were 150 questionnaires dispatched to students in the five Secondary Schools and 125 or 83.3% were completed and returned. By and large the total average response rate for questionnaires of over 83% was pleasing as it went a long way in making the findings valid and reliable. Although a 100% response rate was desirable, it was not possible since respondents were asked to voluntarily take part.

7. Main Findings

7.1 Findings from Teachers' Responses

- 80% of the teachers responded that most of the Secondary Schools under study offered two practical subjects as depicted by the number of respondents. This was viewed as very narrow if all students in a school are expected to like two subjects. More choices of practical subjects should be available in each Secondary School.
- 59% of the teachers who were respondents in this study stated that Practical Subjects were less important. Teachers are key in shaping students' perceptions and if they have negative feelings about Practical Subjects they are likely to pass on such perceptions to students.
- 74% of the teachers who were respondents think that most students do not enjoy doing technovocational subjects at Secondary School.
- 65% the teachers who were respondents stated that students do not treat practical subjects seriously. Such attitudes become a factor which affects the implementation of the strategic change in the teaching of practical subjects in Secondary Schools.
- 35 out of 63 of the teachers who were respondents (55%) stated that they did not value Practical Subjects. Put simply, they do not enjoy teaching practical subjects. Armed with such negative attitudes, it would be difficult for schools to introduce the strategic change of imparting technopreneurship to Secondary School students. McGregor's Theory X as cited in Bolden (2003) states that an ordinary employee does not want to work and will avoid work as much as possible. This may be the case with teachers who shun practical subjects. However, McGregor's Theory Y, states that employees enjoy work and will work hard if they are motivated and conditions are made suitable. This becomes a challenge to School Heads to ensure that teachers have the resources they need to execute duties.
- 52% of the teachers who were respondents did not view School Heads as treating Practical subjects in the same way as other subjects. This became a factor which affected the implementation of the strategic change of teaching technopreneurship in Secondary Schools.
- 30 out of 63 teachers (48%) did not think that it was a wise idea to make the teaching and learning of Practical subjects compulsory in Secondary Schools.
- 36 out of 63 (57%) teachers who were respondents in this study did not think that students in Secondary Schools were aware of the importance of Practical Subjects. Bhebhe (1988) argued that there is no student who is lazy without cause. Similarly, there is no student who can hate a subject without cause. It is either that the teachers do not motivate students or they do not expose them to the importance of the subjects.
- 81% of the teachers who were respondents agreed that students should be taught entrepreneurship or business skills while still at school. What was strange was that while teachers agreed that technopreneurship skills should be taught at Secondary School, there was nothing they were doing to implement the good idea. Winston Churchill was quoted as saying, 'Head Teachers (Headmasters as they are called in Britain) have powers which even the Prime Minister does not have'. School Heads and teachers can shape the future of students better than anyone else.
- 95% of the teachers who took part in this study agreed that Practical Subjects were better placed to create citizens who value manual work, dignity of labour and can create self-employment among Secondary School leavers as compared to theoretical subjects. Such realization by the teachers was very encouraging as it helped in the strategic change of introducing technopreneurship and technovocational subjects at Secondary School. Responses by teachers agreed with what Feresu (2009), Chung (2008) and Kanyenze (1997) said about the value of practical subjects.
- 79% of the teachers who were respondents accepted that they do not have skills to teach technopreneurshp to Secondary School students. This alone became a major handicap in bringing about the strategic change of imparting technopreneurship skills among Secondary School students. However it was most pleasing that teachers knew their own shortcomings and the common adage that 'To know is to know that you do not know' applies. Teachers who know what they do not know are easy to re-train and staff develop.

- 75% of the teachers who were respondents think that Schools Heads are not doing enough to promote the teaching of Practical Subjects in Secondary Schools. Such observations if true make it difficult to bring about the strategic change of ensuring that students in Secondary Schools are taught technopreneurial skills. All authorities in strategic change management such as Wickham (2006), Cleland (2010) and Carnal (1990) advocated for leaders to be exemplary.
- Teachers who were respondents in the study were asked to state the major reasons of not teaching technovocaional subjects. Their responses were summarized and ranked as shown on Table 2.below:

Major reasons for not teaching Practical Subjects in Secondary Schools	Number of frequencies out of 63	Rank Order
There is no money to buy materials and tools	55	1
Students do not like practical Subjects	33	4
There were no qualified teachers to teach the Practical subjects	37	3
School Heads do not render support	23	5
There are no suitable workshops, facilities etc	51	2

Table 2

According to the rank order, most teachers who were respondents in this study thought that the main reason for not teaching Practical Subjects in Secondary Schools was lack of funds to buy materials needed to teach the subjects. This was followed by the lack of suitable workshops in schools.

In response to the question why some students in Secondary Schools shunned Practical Subjects, the following were the most frequent responses coming out of the teachers and School Heads who were respondents in the study were:

- Lack of knowledge on the value of practical subjects.
- Lack of encouragement from teachers and parents.
- Dislike of manual work by most students.
- The high fees charged to those doing practical subjects.

On what could be done to ensure that there is strategic change in the way technovocational subjects were treated in schools teachers who were respondents gave the following suggestions as a way to encourage the teaching of practical subjects:

- Adequate funding to buy adequate materials.
- There was need to educate students about the value of the practical subjects.
- Teachers who teach practical subjects should be given incentives that are higher than ordinary teachers who teach traditional theoretical subjects because on top of teaching theory wearing jacket and tie, practical subject teachers would have to change to overalls, work suites, safety shoes, gumshoes or dust coats when they go for practicals. All these needed replacement and dry cleaning at a cost.
- Taking at least two Practical subjects should be made compulsory for Secondary School students.
- Adequate teachers for Practical subjects should be trained to support the strategic change.
- Secondary School students should have adequate career guidance and counseling sessions for them to appreciate the importance of technovocational subjects

7.2. Findings from Secondary School Students who were Respondents

There were 125 secondary school students drawn from Form 3 and Form 4 classes who were respondents in the study. Their responses are summarized in this section:

7.2.1. Responses to how many practical subjects respondents were studying

(N=125)

Number of practical subjects students were studying	Number of respondents	Percentage out of 125
Zero	65	52%
One	23	18%
Two	37	30%
Three or more	0	0%
Total	**125**	**100%**

Table 3

The table above shows that most students (52%) were not studying any practical / techonvocational subject at Secondary School in the Northern Central District of Harare Metropolitan Province. The fact that 48% were taking one or two practical subjects was in itself pleasing but one would really expect a 100% uptake of practical subjects given the importance of technovocational subjects. Gilbert (1998) emphasizes the need for leaders to play their roles as advisers.

7.2.2. Out of the 125 studentswho were respondents in the study , 52% did not think that Practical Subjects were equally important in the school curriculum. It was such perceptions which negatively affected all efforts to impart technopreneurial skill in Secondary School students. It was common knowledge that when one viewed something as inferior or less important, they did not put much effort to it.

7.2.3. 62% of the Secondary School students who were respondents in this study stated that they did not enjoy doing Practical Subjects at all. Only 38% enjoyed practical subjects. This was yet another indicator that technopreneurship had not been embraced in the Secondary School system in Zimbabwe. It was also a clear indicator that if the strategic change to introduce technopreneurship was to be introduced in Secondary Schools, it was not going to be easy to get compliance. Hanushek (2007) is clear that if subjects are well planned and well taught, students will be driven to like them.

7.2.4. It came out that 69 out of 125 (or 55%) of the students who were respondents in this study thought that teachers did not value Practical subjects. Such teachers would not drive the technopreneurship agenda in schools. Negative attitudes by teachers brew negative attitudes in students. Teachers should enjoy practical subjects first before expecting students to follow suit.

7.2.5. Of the 125 respondents, 50% stated that School Heads value technovocational subjects. Heads should be seen to openly value technovocational sublects. 50% of the respondents are not enough to send the right message which would shape perceptions of students.

7.2.6. Out of 125 students who were respondents, 107 (86%) did not like the suggestion that Practical Subjects should be made compulsory. The problem is that Government has a roll to direct policy and enforce compliance for the good of the nation. While students may not like the idea of compulsion, there should come a time when such decision has to be made to save Zimbabwe.

7.2.7. Whether students were aware of the importance of Practical Subjects (N=125)

Are you aware of the importance of Practical Subjects in life?	Number of respondents	Percentage out of 125
Yes, I know	63	50,4%
I don't know	62	49.6%
Total	**125**	**100%**

Table 4

Students who were respondents in this study indicated that they knew the value of Practical subjects as indicated by 50.4% who responded as such. However, if their earlier responses in earlier questions were anything to go by, one would see that students do not know the value of Practical subjects. It was also clear that 50.4% of the respondents who stated that they knew the importance of practical subjects were not adequate to make clear judgment of their perceptions on the value of practical subjects.

7.2.8. Of the 125 students who were respondents, 89% agreed that students in Secondary Schools should be taught business skills. That was a very positive development as it showed readiness to embrace technopreneurship. Authorities should build on such readiness to introduce technopreneurial skills which will lead to self-employment after school.

7.2.9. Whether Secondary School students think that technovocational subjects are better placed to create self-employment after leaving school

Do you know that practical subjects are better placed to create self-employment for you after leaving school?	Number of respondents	Percentage out of 125
Yes, I know	75	60%
No, I don't know	50	40%
Total	**125**	**100%**

Table 5 (N=125)

Responses showed that 60% of the student respondents were aware that Practical subjects are important as vehicles for self employment. However, in earlier responses, students indicated that they did not enjoy doing the practical subjects. One would have thought that since students in Secondary Schools knew the value of practical subjects, they should therefore enjoy doing them but that was not the case.

7.2.10. Practical subjects which students in Secondary Schools prefer most

Name of Practical Subject	Number of Students Who Chose The Practical Subject as Their Most Favourite	Rank Order of Subjects Which Were Most Preferred by Students
Home Economics	9	3
Building Studies	5	7
Computer Science	52	1
Fashion and Fabrics	8	4
Metal Work	3	10
Food and Nutrition	23	2
Woodwork	2	11
Agriculture	8	4
Art	5	7
Music	4	9
None. I do not like Practical subjects	6	6
Total	**125**	

Table 6: (N=125)

Out of the 11 practical subjects listed, most Secondary School students who were respondents stated that they preferred Computer Science most followed by Food and Nutrition. While Computer Science is a Practical Subject, it does not have the manual rigors and which would make it better positioned to train practical work as in Woodwork, Building and Metal Work which were among the least preferred. It was clear that respondents liked practical subjects where the aspects of manual work and labour were not well pronounced. Again this became a worrying phenomenon in this study as it became apparent that dislike for practical subjects was linked to dislike of manual work. That factor affected the implementation of the strategic change.

7.2.11. Students were asked why they shunned technovocational subjects**.** Some of the responses that were frequently appearing on the responses of students are:

- Practical subjects were too demanding.
- Practical subjects are expensive.
- Practical subjects are boring.
- Practical subjects turned students into labourers. One has to sweat.
- There were no resources to use when doing practical subjects.
- Teachers who taught practical subjects tended to be harsh.
- Practical subjects are not important for university entrance.

Most of the above issues could be remedied through guidance and counseling if School Heads and teachers were serious in introducing technovocational subjects in Secondary Schools.

7.2.12. On what could be done to make students enjoy doing Practical subjects, students who were respondents had the following replies frequently appearing on their responses:

- Teachers should improve their teaching methods and avoid beating, scolding or threatening students.
- Teachers should reduce the practical components which made students sweat and become dirty. (Agriculture
- was given as an example where students were required to dig deep to make a vegetable bed then water it twice a day to care for plants before getting a mark. This made students dirty and dislike school).
- More funds should be allocated to practical subjects.
- Practical subject fee should be scrapped.

7.3. Findings Captured from School Heads through Face to Face Interviews

Secondary School Heads of the five secondary schools in Northern Central District of Harare Metropolitan Province were interviewed and they indicated that students preferred to register and study for subjects that they could pursue up to A' level and beyond, even up to University. School Heads stated that subjects such as Building, Metal Work, Carpentry, Fashion and Fabrics, Food and Nutrition were either not yet offered at A' level or the A' level teachers and suitable workshops for the subjects were not there. One School Head remarked, 'Students find it stupid to study a subject whose syllabus ends at O' level'. Heads noted that even in cases were Agriculture was offered up to A' level, the required resources were so expensive that it was difficult to do justice to the subject. Another School Head who was a responded stated that, 'For instance, for this School to teach Agriculture up to A' level, there would be need to have a farm with tillage plots, dairy cows, piggery, fowl runs and beef breeds which are required for practicals and that was impossible for urban schools and most schools in communal areas'.

Interviewed Heads further noted that for a Secondary School to have Computer Science, there was need to have adequate computers, printers and computer accessories and qualified staff all of which were difficult to get. With good Desktop Computers costing an average of US$500 each on the local market, a class of forty would need $20 000 excluding costs of repairs, maintenance, security and

source of uninterrupted power. Such amounts were impossible for ordinary Secondary Schools which charged an average of $50 per student per term as school fees.

Another School Head who was interviewed stated, 'Even in cases where a secondary school student had dreams to do a BSc degree in Agriculture when they get to university, it was absurd that a pass in A' level Agriculture was not an entry requirement! Instead, Universities asked for passes in Mathematics, Physics, Chemistry or Biology as entry requirements into BSc Agriculture'. It was such 'dead-end' notion of practical subjects which affected students in choosing to pursue practical subjects. It was for these reasons that students do not register to study technovocational subjects and invariably it affected the introduction of technopreneurship. The same goes for degrees in Architecture, Civil Engineering and other construction related degrees were a pass in Building at O' level or A' level was not an entry requirement. 'Why then should a normal-minded student voluntarily choose to study Building at Secondary School?' remarked one of the School Heads in the interview.

It also emerged from School Heads that while Computer Science is offered at A' level, for someone to do BSc Computer Science, one did not need to have studied it at A' Level. All Practical Subjects suffer the same predicament. School Heads proposed that it would be better for universities to advertise that for one to do BSc. Agriculture, one must have done Agriculture at O'level or A' level etc. Such paradigm shift would boost the uptake of that practical subjects in Secondary Schools.

During the in-depth face-to-face interviews, School Heads noted with concern that while they emphasized the importance of practical subjects, the above issues tended to prove to any average person that the subjects were not important at all and that is why students shun them.

8. Conclusions and Recommendations

8.1. Conclusions

The study found out that, the factors that inhibit the adoption and implementation of the strategic change of imparting technopreneurial skills and introducing technovocational subjects in Secondary School students were:

- Lack of financial support to buy required materials in Secondary Schools since all technovocational or practical subjects are expensive.
- Teachers lacked requisite knowledge to teach technopreneurial and technovocational skills in a manner which motivates students to like the subjects.
- Students do not like practical subjects that are intensive on manual work such as Building Studies, Metal Work, Agriculture and Wood Work/ Carpentry. Instead they preferred such practical subjects as Computer Science, food and Nutrition, Technical Graphics and Art which are largely in-door and are light on manual labour.
- While policies about the teaching of technovocational or practical subjects do exist in Secondary Schools, there were no enforcement mechanisms as such policies were largely ignored.
- The 'old ghost' of the former F2 system which treated Practical Subjects as inferior still existed in the minds of teachers and students and that affected the strategic change of producing technopreneurs in Secondary Schools.
- Teachers in the Secondary Schools under study did not have positive attitudes in the teaching and learning of technopreneurial and technovocational skills in Secondary Schools.
- Many Secondary School students in the Northern Central District of Harare Metropolitan Province do not study any practical subject. They only study traditional theoretical subjects.
- Students in Secondary Schools do not want practical subjects to be made compulsory. They prefer them to remain voluntary in the curriculum.
- Students, teachers and School Heads all know the importance of Technovocational or practical subjects in the curriculum but that has not made them to like the practical subjects.
- The proposition that teachers had limited skills in teaching technopreneurial and technovocational skills to Secondary School students was proven to be correct.
- The other proposition that teachers and students did not like practical subjects was also proven to be true.

8.2. Recommendations

Based on findings and conclusions given above and as drawn from triangulating the responses from teachers, Secondary School students and school heads, it was recommended that:

- There should be enforcing mechanisms to ensure that students in Secondary Schools are taught technopreneurial skills as the most effective way to create self-employment.
- Teaching of technopreneurial skills and technovocational subjects should be made compulsory in Secondary Schools using the Normative Re-educative Strategy of introducing change.
- Deliberate, purposive strategies should be put in place to change the curriculum and infuse technopreneurship as a national policy to ensure that when students leave Secondary School they have the basic skills to do manual work for survival and operate businesses using such skills.

- The factors that inhibit the implementation of the strategic change of imparting technopreneurial and technovocational skills in Secondary School students should be addressed and mitigated so that there is a turnaround. Issues of funding, issues of teachers' attitudes, issues of Career Guidance, encouragement and good teaching methods should be addressed.
- Teachers need re-training or staff development for them to be competent in imparting technopreneurial skills to students.
- For the strategic change of imparting technopreneurial skills to Secondary School students to succeed, there is need to ensure that all practical subjects syllabi that are offered at up to O' level can be developed up to A' level.
- Universities should have practical subjects as part of entry requirements. For instance, Agriculture at A' level should be a pre-requisite for those wishing to study BSc Agriculture at university. The same should go for Computer Science, Building, Home Economics and many others.
- Government should make it mandatory that Teacher Training Colleges which train Secondary School teachers offer technopreneurship and at least one practical subject to each trainee.

9. Areas for Further Research

While this study was able to note the gap in the teaching of technopreneurial and technovocational skills to Secondary Schools students in five secondary schools in the Northern Central District of Harare Metropolitan Province, further research needed to be carried out to ascertain why this cannot start at Primary School as the adage goes, 'catch them young'. There is also need to interrogate the teacher training system to ensure that every teacher leaves college armed with skills to teach at least one practical subject. Further studies should be carried out to see if having practical subjects as entry qualifications to university for related practical degree programmes affects performance of the students.

10. References

i. Babbie, E. (2001) The Practice of Social Research. Thomson. Belmont.
ii. Becker, Howard S., The Epistemology of Qualitative Research. University of Chicago Press, 1996. 53-71. from Ethnography and Human Development : Context and Meaning in Social Inquiry OCLC 46597302
iii. Bell, E and Bryman, A (2003) Business Research Methods. 2nd Ed. New York. Oxford University Press.
iv. Beri, G.C. (2005) Marketing Research. McGraw-Hill Publishing Co. Toronto.
v. Best, J. W. and Kahn, J. V (1999) Research In Education. London Longman.
vi. Bhebhe, T (1988) 'Qualities of a Good Teacher'. Teachers Forum. March 1988 Vol. 68. College Press.
vii. Bolden R, et Al. (June 2003) A Review of Leadership theory and competency Frameworks. Review Report: Exter, Centre for Leadership Studies
viii. Borg, W.R. and Gall, D.G. (1990) An Introduction to Research. David McKay Co. New York.
ix. Broadwell, M.M. and House, R.S. (1986) Supervising Technical and Professional People. John Wiley. New York.
x. Bulsara, H.P. and Porey, P.D. (2010) 'Techno-innovation to Techno-entrepreneurship through Technology Business Incubation in India: An Exploratory Study'. in the Journal of Management, 23pp 239-290
xi. Burnes, B. (2009) Managing Change. 5th ed. Harlow, Pearson Education Limited.
xii. Burns, R.B. (2000). Introduction to Research Methods. Sage Publications. London.
xiii. Cameron, E. and Green, M (2004). Making Sense of Change Management: A Complete Guide to the Models, Tools and Techniques of Organisational Change. London and Sterling, VA. London
xiv. Carnal, C.A. (1990). Managing Change in Organisations. London. Prentice-Hall Chan, W.S; Cheng, M.Y.; Mahmood, A. (2009) The Effects of Entrepreneurship in Education in Malaysia.
xv. Effectiveness of Entrepreneurship Education. Education + Training. Vol. 51 No. 7
xvi. Chigunta, F. (2002). Youth Entrepreneurship: Meeting the Key Policy Challenges. Wolfson College Press. Oxford University. England.
xvii. Chung, F. (2008) 'Accelerating the Expansion of Access to Secondary Education: The 1980 to 1990 Experience in Zimbabwe'. Paris. France: Association for the Development in Africa
xviii. Cleland, D.I. (2010) 'Strategic Issues in Project Management'. Project Management Journal 20 (March) 31-39
xix. Cohen, S.G and Bailey, D.E. (2002) What makes Teams work?: Group effectiveness research from the shop-floor to the Executive suite. Journal of Management, 23pp 239-290
xx. Cohen, L and Manion, L (1996) Research Methods. Biddles. New York.
xxi. Collins, J. and Hussey, R. (2003) Business Research. Hampshire. Macmillan: Pal grave.
xxii. Colin, R. (2009) Real World Research. 2nd Ed. Oxford. Blackwell Publishing Desai, V. (2001) Dynamics of Entrepreneurial Development and Management. Himalaya Publishing . Mumbai.
xxiii. Dorsey, B.J. (1975). The African school leaver: Aspirations, academic achievement and post school employment. In M.W. Murphree (Ed.) Education, Race and Employment in Rhodesia. Salisbury: Artca publications.
xxiv. Feresu, S (2010) Moving Forward in Zimbabwe: Reducing Poverty and Promoting Growth. 2nd Ed. IES UZ. Harare
xxv. Fullan, M. (2001). The Meaning of Educational Change. Toronto. CISE.
xxvi. Gatawa, B.S.M. (1990) The Politics of the School Curriculum. Harare. College Press
xxvii. Gandhi, S. (2010)'Techno-entrepreneurship and Engineering Entrepreneurship'. IEEE Anfenos. 45(1)
xxviii. Gilbert, T. (1998) Management Creativity in Organisations. New York. Oxford University Press.
xxix. Gill, H and Johnson, F. (1997) Research Methods for Managers. Paul Chapman Publishing. London.

xxx. Government of Zimbabwe (2000). Education Sector Transition and Reform Programme (ESTRP). Harare. Zimbabwe. Ministry of Education, Sport and Culture.
xxxi. Gupta, A (2006) Through the doors within: Network, Institutions and Movement. Honey Bee. Harvard Business Review, 63 (4) (June), pp11- 21
xxxii. Hanushek, E.A., and L. Wossmann. (2007). "The Role of Education Quality in Economic Growth." World Bank Policy Research Working Paper No. 4122, The World Bank, Washington, D.C.
xxxiii. Hargater, S (2005). Designing Qualitative Research. Thousand Oaks, CA: Sage. ISBN 0-7619- 1340-8
xxxiv. Havelock, R.G. (2001) Change Agents Guide to Innovation. Englewood Cliffs, New Jersey. Macmillan Publishers.
xxxv. Henry A. (2008) Understanding Strategic Management. 1st Ed. Oxford, Oxford University Press. http://en.wikipedia.org.wiki. Business_incubator.
xxxvi. Jenkins, C. and Knight, J. (2002) The Economic Decline of Zimbabwe: Neither Growth nor Equity. Basingstoke. UK. Palgrave.
xxxvii. ILO (2013). Global Employment Trends for Youths on the Impact of the Global Economic Crisis . Geneva. ILO.
xxxviii. Kanyenze, G. (1997). 'Youth Unemployment in Zimbabwe'. Geneva Switzerland. ILO.
xxxix. Kaplan, J.M. (2004) Patterns of Entrepreneurship. John Wiley and Sons. India
xl. Kiernan, M. (2008) 'Zimbabwe Education Sector Feasibility Study Final Report'. Harare. European Commission
xli. Kotelnikov, V (2010) Inspirational leadership: Leading in the World of Rampant Change. International Journal of Strategic Change Management. Inderscience. www.inderscience
xlii. Kotter, J.P. (1990). What leaders really do. Harvard Business Review, 68 (3) (May), pp101- 111
xliii. Kotter, R. and Schlesinger, H (1989) 'Choosing strategies for change', in Asch, D Readings in Strategic Management. Basingstoke. Macmillan.
xliv. Kumar, V. (2005) International Marketing Research. Pearson Education, Inc: New York.
xlv. Kwashirai, V.C. (2009) Zimbabwe: Poverty, Poverty and Poverty. Nova Publishers. London
xlvi. Leedy P,D (1999) Practical Research: Planning and Design. 2nd Ed. Macmillan Publishing Co. New York.
xlvii. Machingaidze (1998) Quality of Secondary Education in Zimbabwe: Some Policy Suggestions Based on a Survey of Schools. Paris. France. SACMEQ
xlviii. Mahoney, J & Goertz, G. (2006) 'A Tale of Two Cultures: Contrasting Quantitative and Qualitative Research', Political Analysis, 14, 227–249. doi:10.1093/pan/ mpj017
xlix. Mano, R (2006). 'Zimbabwe Smallholder Agriculture Performance and Recurrent Food Security Crisis. Causes and Consequences'. Paper prepare for the Centre of Applied Social Sciences. UZ. Harare.
l. Materu, P. (2006). "Talking Notes." Conference on Knowledge for Africa's Development, Johannesburg, S A.
li. Mavhunga, P.J. (2002) Vocationalisation of School Curriculum as an Instrument for the Instrument for Human Capital Development: Zimbabwean Experiences, Challenges and the way Forward. Zimbabwe Journal of Educational Research. Volume 2(1) pp 43-57.
lii. McAdam, M and McAdam, R. (2006) Network Incubator: The role and operation of Technological Entrepreneurship. in International Journal of Entrepreneurship and Innovation. 17(2): 87-97.
liii. Mhone, G. (2000) Constrained Labour Absorption Capacity in Southern African Economies. Discussion Paper No. 12. ILO. Harare. Zimbabwe.
liv. Ministry of Education, Sport and Culture (2001). The Developments in Education: The Education System at the End of the 20th Century. National Report of the Republic of Zimbabwe. [Online] http://www.ibe.unesco.org/ International/ ICE/natrap/Zimbabwe.pdf [22 Mar 2005].
lv. Mumbengeqwi, C. (1987) 'Continuity and Change in Agricultural Policy' in Mandaza,I (ed) Zimbabwe: The Political Economy of Transition, 1980-1986. Harare. Zimbabwe. Jongwe Press.
lvi. Mumvuma, T. (2002). 'Understanding Reform: The Case of Zimbabwe'. http//www.depot.gdnet.org/Nziramasanga, C.T. (1999) Report of the Presidential Commission of Enquiry into Education and Training. Harare. Government Printers
lvii. Nicholas, S.P. and Armstrong, N.E. (2003) 'Engineering Entrepreneurship: Does Entrepreneurship have a role in Engineering Education?' Harvard Business Review on Entrepreneurship. Harvard Business School Press. USA (175-203)
lviii. Pablos, P.O. (2010). 'Change Implementation and follow-through'. International Journal of Strategic Change Management. Inderscience. www.inderscience.
lix. Piaget, J. (1936). Origins of intelligence in the child. London: Routledge & Kegan Paul.
lx. Ronan, N.J. (2008). 'Managing Academic Change at the University of Botswana' Zimbabwe Journal of Educational Research. Vol. 8. 100-104
lxi. Rukuni, M. (1994). The Evolution of Agricultural Policy: 1980-1990. Harare. Zimbabwe. University Press.
lxii. Secretary of Education, Sport and Culture's Circular No. 3 of 2002. Curriculum PolicyFor Primary and Secondary Schools. Harare. Government of Zimbabwe.
lxiii. Tibaijuka, A.K. (2005) 'Report of the Fact-finding Mission to Zimbabwe to Assess the Scope and Impact of Operation Murambatsvina by the UN Special Envoy on Humanitarian Settlements Issues in Zimbabwe'. New York. USA. UN
lxiv. Tuckman, B.W. (1994). Conducting Research. Harcourt Brace College Publishers. London.
lxv. Wickham, P.A. (2006) Strategic Entrepreneurship. 4th Ed. Prentice-Hall. London
lxvi. Whittaker, D.H. (2001) Crisis and Innovation in Japan: A New Future through Techno- Entrepreneurship. University of Cambridge Press
lxvii. Zvobgo, R.J (1994) Colonisation and Education in Zimbabwe. Harare: Sapes Books.