

# In Pursuit Of Quality Education For Innovation And Entrepreneurship: A Think Piece

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## ABSTRACT

*During the last quarter of the 20<sup>th</sup> century, major and complex transformations took place in the world in all spheres of social life. These transformations were due, in part, to scientific and technological innovations which radically altered productive processes, and changed the organization and information of societies, making technical change and scientific knowledge increasingly decisive and determinant for the socio-economic development of countries. In this context, wealth and well-being depend more on technical and scientific knowledge than on natural resources. 'We cannot afford to rely on our natural resources' comparative advantages in an increasingly competitive global markets and in the face of perennial food deficits and persisting poverty'(Kojo Asiedu, 2010).*

*The advances and innovations that have taken place in productive processes place human beings at the centre of development because these transformations "are caused, before all else, by the ability of human beings to dominate and organize the environment around their needs". In this and other respects, education and strategies for building human resources and human capital as well as social capabilities become indispensable. Nations and organizations including universities, research and development centres, and other relevant institutions must continually innovate new products and services if they want to compete successfully. The paper notes that innovation is a key characteristic of entrepreneurial ventures. Indeed, innovation is what makes the entrepreneurial venture "entrepreneurial". The quality and motivation of a country's trained, knowledgeable HUMAN RESOURCES are of immense importance to any national system of innovation. In other words, this implies "investing in people, both women and men, boys and girls, as the productive and creative core of the economy" .*

*Quality education for innovation and entrepreneurship requires adjustment or modernization of African higher education especially, the universities for competitiveness. This paper attempts to contribute to such a critical issue by suggesting a framework for adjusting/modernizing higher education in Africa in the twenty-first century.*

*The paper discusses Schumpeter's theory of innovation, the process of innovation and its determinants, and their relevance to competition. The paper advocates that, if Africa is to be relevant in the 21<sup>st</sup> century and be master of its own destiny, the continent must understand the dialectics of institution building , particularly in science and technology, and the roles of such institutions in national development agenda. The paper as part of its conclusion, also argues why public policy to support entrepreneurship in Africa will have to take new directions on a number of fronts, including placing a premium on visionary leadership and a priority on the recognition and effective utilization of the talents, abilities and the creativity of its citizens.*

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## INTRODUCTION

Education, in all its various aspects, plays a determinant role in development. The concept of human development regards people's educational level as one of the most important measurable dimensions that expresses society's level of development. Educated people are better able to innovate and to adopt increasingly productive methods that allow them to lead decent, creative, longer lives, under conditions in which as it is popularly said, "life is worth living". Educated people have the necessary instruments to fight against social exclusion, they can influence decisions that affect their lives and are capable of receiving and sharing information, thus contributing to researching the knowledge and cultural heritage of humanity.

The school education system allows the social dissemination of knowledge in an effective, efficient and consensual manner. Apart from the transmission of scientific knowledge that allows individuals to "jump stage" in the learning process, education also performs an important function in their socialization. The school should, in principle, be inspired in family and community education so that, apart from skills, it inculcates in the new generations socially important values, and shapes attitudes such as self-discipline, pride in one's work, flexibility, the spirit of openness, and willingness to cooperate with others (UNDP, 1996: 51).

Recognition of the importance of school education in development culminated in its promotion to the realm of fundamental rights, enshrined in the Universal Declaration of Human Rights. Article 26 of this international statement of principles defends the right to education without discrimination, and establishes compulsory free basic education for all citizens of any particular country. The definition of what constitutes "basic education" is left to the discretion of each country, in accordance with its capacities, resources and priorities.

In its essentials, the concept of human development pursues this ideal, stressing education in the development of individuals and of nations, and drawing attention to the observance of this right through its various measuring instruments.

It is important to stress that the approach to education in the context of human development is -substantially different from the economist perspective of "human resources", because this stresses the role of education in training "human capital". From the human resources approach, the function of education is merely to develop skills, in order to make people more productive and innovative and, as the investment that it is, the merit of educating or not educating a population does not derive from social dictates, but from its perceived social or individual rate of return. But the concept of human development takes the premise that education is one of the basic dimensions of development, since it constitutes an inescapable choice of people, irrespective of their social status. Thus learning is regarded as being of intrinsic value, because it makes it possible to expand the abilities of people to make informed choices about their lives, regardless of whether these abilities will or will not be applied in increased production and in innovation.

In the human development approach, school education is only of value when it genuinely

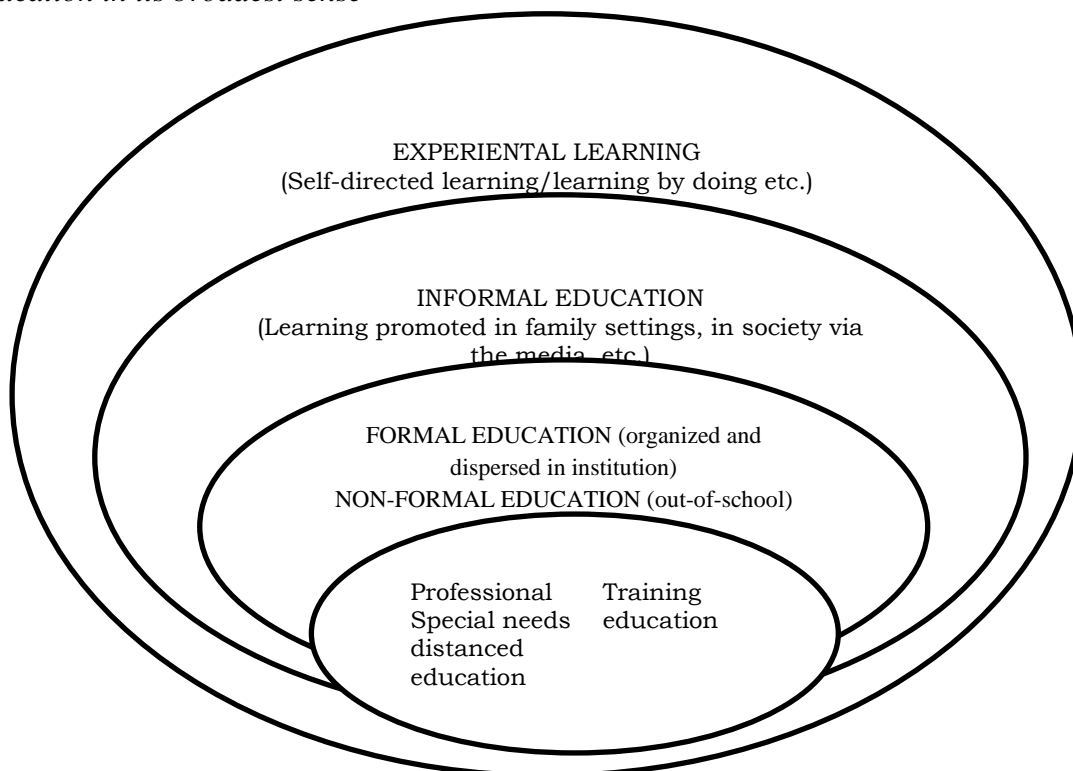
contributes to expanding the general well-being of people in its broadest sense. Thus education is transformed into an end in itself. The lack of educational provision is a privation which should provoke an analysis of the causes and lead, whenever possible, to corrective action on the part of governments and of society at large (UNDP, 1996: 54-55).

School education is a priority and an indispensable instrument in combating exclusion and social discrimination. As the 1996 Global Human Development Report (GHDR) shows, education can be a vehicle through which the equitable distribution of resources is guaranteed. For example, when the possibility of qualified personnel using their knowledge to demand more privileges is restricted through an increase in the number of trained people, then the gap in incomes may also be reduced, thus contributing to social stability (UNDP, 1996).

A further example lies in providing schooling for girls and women, a process that liberates the beneficiaries, at the same time as opening spaces and opportunities for their economic and social participation, the fundamental condition for reducing the levels of privation that effect this social group, which is the majority of the population.

Education, in this paper, is considered in its broadest sense possible. It includes (but transcends) mere schooling and should be seen as an articulation of informal opportunities for self-improvement, non-formal structures for the inculcation and sustenance of basic and post-basic life skills, and formal systems for the awakening and continuous development of the human potential. This broad view of Education is well captured in UNESCO's "World Education Report"(1991),as illustrated in figure below(Obanya, P.,1999,p.14).

**Fig. :** *Education in its broadest sense*



Training and development is essentially about 'making learning happen', any form of learning, although usually in the service of some work goal or goals. Learning can and does occur naturally as a by-product of everyday experience, but random learning is somewhat unpredictable, slow in performance, and may even be counterproductive (e.g. a random route to learning that an electric drill is a dangerous instrument may involve a nasty injury). Training and development usually involves ways of abandoning random learning routes in favour of more productive, planned routes. 'Education' and 'training' are ways of doing just that - abandoning random learning routes in favour of more productive, planned routes. The UK Manpower Services Commission's 'Glossary of Training Terms' offered the following definitions in 1981:

Education is defined as 'activities which aim at developing the knowledge, skills, moral values and understanding required in all aspects of life rather than a knowledge and skill relating to only a limited field of activity. The purpose of education is to provide the conditions essential to young people and adults to develop an understanding of the traditions and ideas influencing the society in which they live and to enable them to make a contribution to it. It involves the study of their own cultures and of the laws of nature, as well as the acquisition of linguistic and other skills which are basic to learning, personal development, creativity and communication'.

Training is 'a planned process to modify attitude, knowledge or skill and behaviour through learning experience to achieve effective performance in an activity or range of activities. Its purpose, in the work situation, is to develop the abilities of the individual and to satisfy the current and future needs of the organization.'

Both education and training are achieved by creating conditions in which the necessary attitudes, skill and knowledge can be effectively acquired by a learner who, as a result, becomes relatively confident of his or her abilities to apply them. It is important to understand that although confidence is not the only outcome of learning, and not the only generator of the will to develop further, it is central to the learner's ability to transfer what has been learned to novel situations — in a very real sense, it is the learner's confidence that allows the learning to be 'used'.

The underlying philosophy in these definitions is that education gives the general basis for living, and that training modifies and directs one's abilities towards a particular activity or activities. It can be seen that this philosophy assumes that the learner is an individual, and that plans are created by teachers or trainers to help, if not guarantee, learner's learning.

## **QUALITY OF EDUCATION/ QUALITY EDUCATION: Different Approaches**

There are various approaches regarding quality and these have their roots in different traditions of educational thoughts. Humanistic approaches, behaviourist theory, and sociological critiques of education and challenges to the legacies of colonialism have each enriched the quality debate. On the basis of these approaches the 'Education for All' (EFA) Global Monitoring Team Report adopts a framework that takes into account five major factors affecting quality: learners whose diversity must be recognized; the national economic and social context; material and human resources; the teaching and learning process and the outcomes and benefits of education.

Gordon and Partington (1993) conceptualized education quality as the degree of success with which an institution provides educational environment which enables students to effectively achieve worthwhile learning goals and appropriate academic standard. According to Cole (1996), quality is the degree of excellence. It is synonymous with standard, efficiency, excellence, relevance and worthiness. An expanded definition of quality sets out the desirable characteristics of learners (healthy, motivated students), processes( competent teachers using active pedagogies), content(relevant curricula) and systems(good governance and equitable resource allocation(UNESCO, 2005).UNESCO sees education throughout life as based on four pillars: Learning to know learners build their own knowledge daily, combining indigenous and 'external' elements; Learning to do focuses on the practical application of what is learned or knowledge acquired; Learning to live together.....addresses the critical skills for a life free from discrimination, where all have equal opportunity to develop themselves, their families and the communities; and Learning to be emphasizes the skills needed for individual to develop their full potential. According to Delors et al. (1996), this conceptualization of education provided an integrated and comprehensive view of learning and, therefore, of what constitutes education quality. Obanya (2002) notes that quality pervades every action that goes into making the process of educating possible, every element of the activities undertaken in the process of educating, and the wide array of beneficial results of educational activities on both individual learners and the wider society. The subject of education quality can therefore be addressed at three levels: input, process and output

### **Linking Education with Productive Work in the African Context.**

This section is intended to provoke discussion on the practicalities of foregoing, the necessary linkages between Education and Productive Work, especially within the context of EFA in Africa. (Much of this section of the paper is based on insights published in UNESCO-Africa in 1991 pp 12-16)The section deals with conceptual issues, reviews of some African policies and practices, and the main problems which have impeded the realization of programmes of Education related to productive work, and suggests some workable policy and practice options.

## Conceptual Issues

The major conceptual issues relate to the key words in the title of the section itself, namely "Education" and "Productive Work". We shall attempt to raise issues concerned with a clearer definition of these terms, beginning with Education.

Education --a term, which nearly every person bandies about. The reason is that we are all promoters, beneficiaries, victims, subjects, and objects of Education. In our daily lives, we transfer ideas, knowledge, attitudes and values to other persons. By so doing, we are promoting Education. Every one of us does get something from our interactions with other persons. Any positive gain in ideas, concepts, knowledge, etc make us beneficiaries of Education, while negative gains (i.e., negative influences of learned behaviour from other persons on us) make us victims of Education. We are subjects of Education because we can be studied (our physical, social, psychological characteristics), and we are objects of Education because Education always has some form of influence on us.

It is commonplace to say that Education is not simply schooling. In fact, the most elementary principle in the scientific study of the discipline of Education is to classify it into formal, non-formal and informal. The only thing wrong with this type of classification is its exclusive nature. Thus, formal education is seen as that which has been rigorously programmed, while most national efforts go into programming formal education, that which makes the greatest impact on the learner in a school setting, is usually the incidental. This is seen when the contacts made in school are maintained in later life, the stories told by teachers are remembered for a longer time than the substance of their lessons, and so on. It is also usual to see non-formal education as less programmed than formal education but more formal than informal education. The problem here is that the boundary line between one and the other is not at all clear-cut in every educational setting.

Education in our understanding should also be seen as societal-generated opportunities for developing human attributes for individual self-fulfillment and for societal progress. Certainly, such opportunities cannot be entirely generated through formal schooling. They will have to be transversal, bringing school and out-of-school as close together as possible. Such opportunities can also not be fully generated by ministries and departments of Education (even in cases in which such agencies also deal with out-of-school education). What the strictly educational agencies provide should complement that which is provided by all other agencies which also deal with human and societal development: health, social welfare, agriculture, cooperatives, etc.(Obanya,p274)

## Productive Work

Thinking on the meaning of the term "Productive Work" has evolved during the past five decades. There was a time when the term referred strictly to that type of work which is manual and the type of work whose result can be clearly perceived, that which is tangible. This notion of productive work was later to be challenged by persons who raised the question: "Is there any type of work that is not productive?" Attempts to answer such a question have led to a re-

conceptualization which merges the physical and the mental (or intellectual) aspects of work to produce objects and ideas. At a later stage, thinking on the subject became influenced by the problem of unemployment of the products of school systems. So, the issue was raised as to the need to enable young persons, in particular, to graduate from schools with "directly useable or saleable skills".

The debate on whether or not this would be feasible as an objective of Education is still on. It has led to calls for greater vocationalisation of Education. It has also led to attempts of different types, in different places, to relate the content and methods of Education to the "demands of the labour market".

Taking these conceptualizations of "productive work" one after the other, it is possible to see the extent to which they fall short of qualifying as the ultimate goal of Education. Considered mainly as manual work, one will tend to ignore the fact that thinking has to precede, to go along with doing and that creation (or production) should take place, first of all in the mind. When limited to the production of that which is tangible (even when thinking and doing are taken together), one will tend to ignore the fact that ideas are also productions. Throughout history, humanity has been moved by ideas, which have given rise to socio-economic as well as scientific and technological development. When limited to linking Education to "employability", the "absorptive capacity of the economy", "directly useable and sale-able skills", the "demands of the labour market", etc one tends to ignore the existence of other socio-economic forces which determine the extent to which human beings can be employable. In short, "productive work" includes all that has been said (concrete production, using the head, the heart and the hands) and relating what is produced to social demands. But it also includes more. The world has to keep moving and it cannot be moved by static minds, using static mental and physical tools. It can only be moved when what is learnt, known, produced is used to learn, to know and to produce more and better. In other words, "productive work" is that type of work which is creative of new ideas, new ways of looking at issues and problems, and therefore giving rise to more suitable products in mental and physical forms.

From the foregoing, it is deduced that the earliest conceptions of the term "productive work" (as manual production of concrete objects) gave rise to the term "education and productive work". Trying to educate for the production of "useable and saleable skills" gave rise to the term "education with production". Attempts to relate education to employment possibilities have given rise to the term "education for the world of work".

As was pointed out earlier, the umbrella term under discussion should contain all of these elements. Education should be mental and physical. It should inculcate skills that can be directly and socially useable. Neither should education be so diverted from socio-economic nor labour market possibilities that it produces only persons who are completely out of touch with out-of-school realities. Education should perform all these functions and more. It should lean heavily on creativity, so that it can become a tool for moving society. Therefore, "Education and Productive Work" should ideally be seen as "Education through Productive Work". This means that the emphasis will not be placed only on what education produces but mainly on the methods which it uses to produce. Thus, every subject matter and every form of education can be made to be productive, if it induces creativity in its beneficiaries. (Ibid, p375)



## **“Children in Developing Countries are Learning Less” says UN Human Development Report: The Wealth of Nations.**

This section of the paper begins with the notion that knowledge expands people’s possibilities; knowledge as mental achievement acquired through study and experience as an intellectual or cognitive results of learning experiences is the basic learning result and which is lodged in a person’s mind, promotes creativity and imagination (Nussbaum, M., 2000). In addition to its intrinsic value, it has substantial instrumental value in expanding other freedoms. Being educated empowers people to advance their interests and resist exploitation (Rodrick, 2007, Hausman, Rodrick and Velasco, 2008), Educated people are more aware of how to avoid health risks and to live longer and more comfortable lives (ibid). They also tend to earn higher wages and have better jobs. Many uneducated parents value schooling because they believe education will enable their sons and daughters to overcome the indignity their families face. People around the world today have much higher levels of education than ever before--a result that holds across many different measures of education (UNDP, HD Report 2010,p36). Take years of schooling: an average person aged 15 or older in 1960 had fewer than 4 years of schooling--by 2010 this number had doubled globally and more than tripled in developing countries (from 1.9 years to 6.4). Since 1990 average years of schooling have risen by two years and gross enrolment ratios by 12 percentage points --while literacy rates have risen from 73 percent to 84 percent. Enrolments have increased faster for girls than for boys over the past few decades and from 1991 to 2007 the ratio of female to male primary enrolment rose in all regions.

Summary measures of educational attainment (such as mean years of schooling or population with at least secondary education) show remarkable increases across the board for both men and woman, though the gap is still large in many developing countries. In Sub-Saharan Africa the gender gap in years of education has narrowed by 26 points. However in countries like Benin, Central Africa Republic, Liberia, Haiti, Mozambique, Niger and Togo--women have fewer than half the years of schooling of men (UNDP, HDR 2010, p38)

Expanded schooling is associated with increased public funding in much of the world. Public spending on education averaged 5.1% of GDP in 2006, up from 3.9% of GDP in 1970 (Ivanov, A. and Pelach, M. 2010). The resources devoted to educating each student have also increased, rising 43% since 1990. But huge disparities in spending are glaring. The annual average is nearly USD 4,611 per pupil worldwide, but only USD 184 in Sub-Saharan Africa, even after increasing 15% since 1990--roughly an eighth that in Latin American and less than one fortieth that in developed countries (Gallup World Poll, 2010).

Higher spending and enrolment do not necessarily mean better schooling. The gap in school quality are huge, although whether schooling has improved or deteriorated over time is hard to tell due to lack of data. In general, children in developing countries learn FAR LESS than

children schooled for the same number of years in developed countries (UNDP, HDR Report, 2010). Children at the same education level in developing countries as their counterparts in developed countries score on average about 20% lower on standardized tests--- about a three – grade difference (Glewwe, P and M. Kremer, 2006). Average math scores were as high in South Korea and Malaysia as in developed countries, but abysmally, low in South Africa, for example. In some cases the differences reflect inefficiencies as much as low spending (World Bank, 2010g). Most empirical studies, though not always conclusive, support the notion that resources available to the students in schools also influence student achievements. Lee and Barro (1997), based on aggregate cross- country data show that more school resources ----especially smaller class sizes and higher teacher quality----enhance student achievements in mathematics, science, and literacy tests. Hence developing countries can focus on improving teacher-pupil ratios and the quality of teachers in order to enhance the overall educational quality. Improving educational quality also involves improving the efficiency of educational systems. For the improvement of schooling quality, both the level and effectiveness of educational inputs should be increased. Strengthening managerial and institutional capabilities throughout the educational system will be essential in the success of these efforts.

The difficulties in improving education quality illustrate the varying effectiveness, of state involvement—at least as traditionally conceived. Decisions to expand schools usually come from the top down, supported by politically aligned teachers unions and contractors. It is much harder to get motivated teachers to impart real learning skills. Solving incentive problems for managers and workers, always difficult, is especially challenging when the state is embedded in patronage-based mechanisms of channeling goods and services to core supporters, creating new entrenched groups along the way (Pritchett, L and R. Murgal 2007). Almost more than a decade and a half after De and Dreze's Public Report on Basic Education in India exposed teacher absenteeism of 48 percent, high rates have persisted, despite major budget and management reforms and infrastructure improvements in the interim (Prasad, N., 2008). Low quality education in developing countries does not necessarily imply that deterioration has occurred. Data are inadequate for reaching firm conclusions about long- or even medium-term trends in quality. Moreover, test scores depend on many factors, particularly students' socioeconomic background. Children from well-off families are likely to be better nourished and healthier and have more access to materials than poorer children, and their parents can do more to help them (World Bank, 2005). So as school expansions bring in more disadvantaged students, average test scores will tend to drop even if education quality does not change.

The picture is thus of poor countries rapidly catching up on aggregate educational attainment and gender equity but not necessarily on quality. There are also major disparities between groups within countries. Thus, while the advances of the past decades are substantial, there is still a long way to go towards equity, as one of the characteristics of quality education, in access to knowledge (UNDP, 2010 p.40). Reforms undertaken over the years seem not to have had the desired results as far as quality education is concerned. Literature review on this issue is summarized in the section that follows.

## **REFORMS: Influencing factors and failures.**

In spite of all the socio- economic and political constraints, in spite of the wide knowledge deficit (relative lack of access to modern scientific and technical knowledge and information) between Africa and the rest of the world, the continent is part and parcel of the global village. This phenomenon, globalization has had and continues to have its effects on the development of education on the continent.

A critical look at the formal education sector suggests that African has not been able to catch up with new scientific and technological ideas and products needed to enrich school curricula. The result is that the promotion of real learning in African schooling is still difficult, and frontal teaching and memorization generally take the place of investigation, experimentation, discussion. Labels that are mere definitions of concepts are memorized in place of real understanding of concepts themselves. This situation does not augur well with the application of classroom learning to real life situations.

In the non-formal sector, the mass media (the popular press, books, magazines, with doubtful educational values and unguided tourism) have helped to introduce in various respects, socially undesirable practices in Africa in the name of modernization. Again the rapid spread and overwhelming influence of the ghetto culture ventilated by sections of contemporary media and social media has further contaminated the culture and values clash which Africa has experienced since the onset of colonialisation.

Observers and commentators on African attempts at educational reform tend to blame failures on lack of political will. While this explains part of the problems, it is not the whole story. Issues of major relevance include commitment to change ,method-content issues. Obanya (1991) notes that failure of educational reform can be traced at several levels. There can be a failure to see the need for reform (as in cases where governments carry on the business of education as it has always been done). There can be a failure to conceptualize reform as an all-embracing process (as in cases in which old structures are given new names). There can be failures related to a wrong diagnosis of educational ills (as in the misconception that vocationalisation or ruralisation of education would solve the problem of unemployment). There can be failures of interpretation of reform documents. (As in cases where a provision for continuous assessment results in continuous testing in schools). There can be failures due to precipitate action (as in cases in which officials and teachers get to know, only through the mass-media, that a new education system). There can be failures due to discontinuity (as in cases in which projects get started with fanfare and are very soon abandoned). There can be failures due to lack of integration (as in cases pilot projects remain isolated from the mainstream of national educational practices). There can be failures due to lack of a monitoring mechanism (as in many cases in which intentions are sung as achievements and in which on-the-ground experience is not fed info the reform process). Finally, there can be failures due to lack of support from teachers and the wider public, mainly because the provisions of the reform documents have not been fully internalized.

Thus, one can identify several factors apart from political will.

Building up commitment to change should become the most important objective of educational reform in Africa. This cannot be brought about by after-the-event seminars, radio broadcasts, the distribution of leaflets, or village-square information meetings. Neither can it be brought about by conference papers that paint rosy pictures of the miracles that reforms are designed to accomplish. One way to build it up is to take steps to ensure that the determinants of educational change also become its determiners. As desirable as educational reform is for Africa, we in Africa cannot claim to have reformed enough. A lot of work has certainly been done and enormous resources have been committed to education. But the fact remains that there has been very little qualitative change. Efforts now have to be directed to the type of educational- reform that should bring about qualitative improvement. A reconsideration of the major issues (conceptual, structural, method-contents, and levels and types of commitment to change) would be a reformative way to begin a new set of reforms. The next section looks at these issues in more detail.

## **METHOD-CONTENT-ISSUES**

Educational reform has not only a philosophical (why) but also didactic (what and how) dimension. Often, the misconceptions that have bedeviled the philosophy also affect the didactics. Thus we hear of educational reform documents singing praises of such 'new' ideas as education and productive work, emphasis on science, and vocationally-biased curricula are cited below examples, to illustrate the extent to which educational reform documents in African countries have often been premised on faulty didactics.

### **Education and Productive Work**

There have been two major interpretations of education and productive work in Africa: emphasis on manual work and schools serving as production units, manual work is seen as punishment

In the field experience shows that school children in Africa often despise such activities. For one reason, they have come to school mainly to escape such menial activities. For another, school teachers are not usually practitioners of traditional crafts and so cannot preach what they do not practice. Moreover, even schools do not often take these activities seriously, as the reasons behind the new emphasis on them in educational reform documents have not been internalized.

In the second case, where schools have been regarded as production units, institutions are expected to yield revenue to offset running costs. That such ideas should fail in practice is not surprising. First, to be able to produce in order to yield revenue, the appropriate inputs (tools, machines, personnel, money) have to be available. Second, the society's economy has to be able to absorb what has been produced."

It is difficult to find any situation in Africa which has met these two requirements. Schools still lack the basics, even for talk-and-chalk activities and so 'production' has to be done through age-old, back-breaking methods. The wider society often does not have the purchasing power to buy school products (where these exist), while the school products are the same as in the immediate community.

Therefore, the failure of new didactics as 'education and productive work' has not been due simply to teachers' lack of understanding or to parents' lack of support, but to deeper issues related to conceptualization. The slogan should in fact be 'Education through productive work' in which case the (manual/mental) that is done serve to educate: helping the learner to learn. This type of productive work can be built into all educational activities: formal disciplines, out-of-class work, general comportment of learners and teachers. It should thus become not simply an emphasis on skills, but mainly on attitudes. Schools ought then to build in hard thinking, practical activities, and creative endeavors into their very existence and get learners to internalize these as a way of life. It is therefore not a case of working in order simply to earn, but working as a means of learning and in order to learn.

## **The Emphasis on Science**

Human beings are surrounded by science, whatever the level of technological sophistication of the environment in which they live. Therefore, *science in education and education in science* are a social necessity. In available education reform documents however, science has been interpreted a little too narrowly to mean integrated science, biology, chemistry and physics. Doing science, by inculcating scientific behaviour through appropriate educational activities, has not been given its due emphasis. This partly explains why school science has made very little contribution to improving the environment in which the school is located, and why products of school science have not always made any meaningful impact on society. Even with this narrow view of science, there is still plenty of lip-service paid to the need to promote it in schools. There is still a great deal of mystification of science through poor teaching.

But the worst aspect of the problem is the conscious attempt to glorify the teaching and learning of the scientific disciplines, as if that is all that Education requires. The example of the more industrialized countries shows that the educated persons who can use their hands (to do repairs on the house for example), can also understand natural phenomena (such as the possible causes of drought), can at the same time give good vent to their emotions (as in appreciation of art or music) and also keeps on learning (by engaging in specific and general reading).

## **Vocationally-Biased Curricula**

Perhaps the most abused and badly interpreted aspect of educational reform found in many reform documents in Africa is that of vocationally-biased curricula. One interesting misinterpretation here is that the possession of vocational skills will directly lead to the elimination of unemployment. Another is that some children should be channeled to voca-

tional programmes because they are not bright enough for more academic courses. Both assumptions are fallacious from several points of view.

Employment, whether self-employment or in a job, is a function of the state of a society's economy. Skills, and products of skilled work, cannot be sold in a situation where very few people can afford to buy them. Even the products of skills will be difficult to come by if the producers cannot afford the raw materials for the products. Therefore, without reforms in other areas, the graduates of vocationally-biased curricula reforms will still come out unemployed and disgruntled as persons without vocational skills.

The issue of channeling the less bright to vocational schools presupposes that intellect has a very small role to play in the acquisition of vocational skills. This has led to a situation in which only the socially, economically and intellectually disadvantaged get into vocational courses, as un-willing learners. The same situation of disgruntlement is reproduced because learners see themselves as being forced into vocational streams while they are also being despised by their colleagues in academic streams.

## HOW SHOULD WE EDUCATE FOR THE 21<sup>st</sup> CENTURY AND WITH WHAT TOOLS?

Africa's educational response to the challenges of survival and belonging which it has to face in 21<sup>st</sup> century would require a curriculum which is (a) culture-rooted and African values-loaded, (b) open to external influences, analytically borrowed and critically adapted to Africa's needs, (c) creativity-driven, and (d) integrated to bring together various forms of learning experiences. Each of these factors is briefly discussed below.

### **A Culture-Rooted Curriculum**

Education in Africa, to be worthy of the name, should go back to the basics and emphasize the primary role of Education which is in *enculturation*. This can be done by promoting basic education through the medium of African languages. The use of African languages will also include the values, the thought patterns, the history, the traditions, the visions of the world ventilated by these languages. African cultural values can also be inculcated in other ways, like the organization of school work emphasizing cooperation and the team spirit. The use of traditional forms of story-telling, of illustrating, of communicating can also be useful here. The same will be true of the learning and teaching of African sports and games, the values of African food, African approaches to health care and the adaptation of all school subjects to the needs of the immediate environment.

### **A Curriculum Open to External Influences**

For Africa to really belong to the world of the 21<sup>st</sup> century, she has to be open to external influences. What will be needed is a systematic and vigorous system of pushing back external negative influences. The first approach here is for the school curriculum to be deeply rooted in Africa's cultural values. This is because a people who know it will be better able to decide what is not good for it. One way of opening up to external influences will be the intensified teaching of English and French. This will however follow-up on a solid foundation in African languages. Such a solid foundation is a way of producing Africans who will not equate music simply with Mozart, drama with Victor Hugo, the novel with Dickens, nor History mainly with non-African civilizations, or Science and Technology as simply Western concepts. The grounding on African cultural values will serve to show that all these have always been part of African life and that new ideas from the outside will be useful only to the extent to which they help to enrich what Africa has always possessed. (Obanya,P.,1999.p168)

### **Creativity-Driven Curriculum**

The 21<sup>st</sup> century will be a time when subject-matter knowledge will not be the most important objective of a curriculum. This is because the knowledge explosion phenomenon is likely to accelerate further during 21st century. Another reason is that every person will be expected to be a problem solver, as challenges in various spheres will be posing threats to human

existence. What is more, Africa will have to join the world of persons who think, who invent, discover and create. In practical terms, how can one ensure a creativity-driven curriculum? First of all, the term 'creativity' has to be demystified and understood in its true sense of the ability to question, to examine critically, to seek alternative possibilities, and to venture. Second, the point must be made that even though creativity is a high order cognitive trait, it can be inculcated at all levels and in all forms of Education. In the school setting what is required is a shift from telling to guiding in all teaching-learning activities.

## **An Integrated Curriculum**

To include everything that has to be learnt as a distinct discipline in a 21<sup>st</sup> Century curriculum would amount to curriculum overload, and no school will be able to carry such a load. What will be needed is a more integrated approach to curriculum organization, one which will emphasize the skills to be developed and which will draw from various possible disciplines in seeking solutions to specific problems. Thus, the current trend of always 'including' new ideas and new problems in the school curriculum should be replaced by one of 'integrating' new human concerns into existing curricula.

In every subject area, the emphasis will be on methodology, on general principles, on processes, and on practical application of what is learnt. This will be in itself a way of teaching for creativity and of developing learning-to-learn-skills.

The challenges to Education in the 21<sup>st</sup> century cannot be fully met until they are translated into school and classroom "do-ables". Progressive ideas can be implemented only by persons who have been deeply involved in the development of such ideas and who therefore have internalized their objectives and basic principles. That is why the 21<sup>st</sup> century teacher in Africa has to be a *professional educator* in every sense of the term. Being a professional has at least five components (a) aptitude, (b) education, (c) training, (d) compartment, (e) social status. All of these components will have to be present in the future teacher. For already serving teachers, career development programmes should be developed to cater for the components that may be missing in specific groups. The preparation of the professional teacher has its *vertical* and *horizontal* dimensions. Taking care of the vertical dimension, means providing pre-service education for the would-be teacher and ensuring the teacher's continued, professional development through a programme for career-long professional and general education. Closely linked to the vertical dimension, the horizontal dimension of teacher preparation involves broadening the teacher's horizon as preparation for other *teaching roles*, like school headship and services in various forms to the educational system (inspection/supervision, curriculum development, guidance and counselling, etc

## **Developing Entrepreneurial and Creativity Skills**

For any society to move, its members have to create ideas and try them out. The efforts, the risk, the perseverance, and the learning experience involved in trying out novel ideas are what



entrepreneurship is all about. This, together with creativity, will need to become part and parcel of teaching and learning, if productive work through Education is to flourish in African countries. With special reference to entrepreneurial skills, the following procedure will be worthy of consideration: It should be part of the content at all levels of formal education, infused into all activities at the lower levels and constituting a distinct activity in the later stages. It should also be a continuing activity for the out-of-school population, even for persons in regular employment.

The overall philosophy should be the inculcation of such values as honesty, hard work, organizational skills, etc and not simply money-making.

Teaching-learning activities should give adequate attention to the conventional wisdom of the entrepreneur in the non-formal sector of the economy. Traditional virtues like cooperation, self-help, community service should be an integral part of such a programme. Above all, entrepreneurship should be systematically developed, implemented, and regularly evaluated like all curriculum programmes.

**Creativity** combines thought and ideas, and so, in fostering creativity in the school system, the emphasis should be on the encouragement of thinking and the free expression of ideas. This again calls for democracy in the home, in the school, in the wider society.

Since what happens to a person in the early years of life determines, to a large extent, what one becomes later in life, African States should pay due attention to the development of early childhood care and education programmes. Traditional system of early childhood socialization has a lot to do here, and these could be slightly modified to include modern techniques of health and sanitation.

It follows from what has just been said that adequate attention will have to be given to the continuous education of women. As educated and creative mothers, they can do a lot to stimulate creativity in little children.

A creative form of Education requires creative teachers. Creativity in learners is best nurtured by creative teachers. To produce creative teachers, a lot of creativity will be necessary in programmes of teacher education. To attract creative individuals to such programmes, the status of teachers in African countries will have to be better than it is at the moment.

Since creativity can be both taught and caught, teaching procedures will have to be based on doing things in a novel sort of way. Every lesson should be an opportunity for exploration, for free flow of ideas, for examining alternatives, for drawing out the best from every learner. The foundation for this has to be laid in the wider society. Therefore, the wider society must itself encourage creativity, by giving it adequate rewards and recognition and by giving a free rein to the acquisition of knowledge and the expression of ideas.

Most importantly, creativity has to be recognized as the pervading element of all disciplines

and teaching-learning activities. It should therefore be adequately defined and programmed for in all educational systems.(Ibid. p384)

The central message of this section of the paper is that conceptualization, policies, and practices have got to change in African countries, if Education is to go along with production. For this to happen, Africans will need to draw a lot of lessons from their earlier efforts and so avoid the mistakes that were made in the past.

“Productive Work” is understood here as encompassing all the concepts that are used in the literature on the subject: physical production, mental and physical work geared to socially useful purposes, taking steps to ensure the employability of school leavers, and linking institutionally-inculcated vocational skills to the demands of commerce and industry. But, since society has to be moved by a combination of innovative ideas and actions, Education should also emphasize entrepreneurial skills and creativity at all levels and in all forms. Suggestions have been given as to how this can be translated into policy and practice options. But these are just a way of starting off a discussion. There are certainly other possibilities.

## **THE SPECIAL CASE OF TERTIARY EDUCATION**

Everywhere in Africa, tertiary education will need serious attention. It is tempting to say that this would mean jumping the guns, as the primary and secondary levels are still in a sad state. Everything depends however, on the definition one gives to higher education on the mission assigned to it, and on its particular orientation.

Tertiary education should not be equated simply with a University-type education. Africa is in a good position to explore a variety of possibilities for providing opportunities for developing the human potential at the post-secondary level. The diversification envisaged should include conventional universities, higher vocational/professional institutions, and non-formal avenues for advanced skills development and training in analysis, research and other forms of life-long education.

The current situation in African higher education (related to relevance, inadequate facilities, the brain drain phenomenon, student and teachers' strikes) should be seen as a challenge for re-defining the mission of higher education. African nations should also begin to see higher institutions as reservoirs of talent, knowledge, and skills which can be used in various areas of national endeavour and they should be mobilized for that role. They should also be "exploited" as places for sober reflections on societal issues, for serious work on African cultural heritage for inventions/discoveries to solve technological/social problems. The fruits of such efforts should be fed back into the other levels of education and to the nation's development efforts in all sectors (agriculture, health, commerce, industry, transportation and housing)

## PREPARING THE YOUTH FOR WORK AND PROMOTING LEARNING OPPORTUNITIES: QUALITY MATTERS

There is no doubt that changes are needed within the educational system to prepare young people for work in a modern environment. The quality of life depends upon competitive firms to provide good jobs for everyone and a well-trained and efficient labour force, where continuous learning is the norm, is a main ingredient for this success. It not acceptable to have school leavers, who have not acquired basic skills such as numeracy, literacy and information technology, which are necessary to hold their own in modern society. Young untrained people are particularly vulnerable to unemployment; in times of high skills shortages, a country cannot afford to waste this resource in time of recession, the social consequences of sizeable numbers of unemployed youngsters cannot be contemplated. No longer are people employed for their muscle power or manual dexterity alone; globalization, downsizing and technological change have brought about a situation where it is not sufficient to have a well educated elite; all young people must have adequate preparation. At the higher educational level, employers have expressed their concerns about the value of degrees and have called for a revamp of the system to make common competence a fundamental part of passing the test (Welch 1997). A recent survey shows that graduates have high job and career expectations, but employers continue to complain that university leavers have little general business knowledge and lack communication and IT skills (Prickett, 1998). It is believed that this issue should be addressed and that the four key skills of communication, numeracy, IT skills and the ability to learn should be integrated long-term to the higher education curriculum. Most of the firms in Africa are small sized or medium- sized and this is where most employment growth is likely to be. Graduates entering small organizations are likely to be required to make a useful contribution straight away, and key skills are likely to be prerequisites. In addition, higher education needs to stimulate graduates to become entrepreneurs and equip them to start up a business.

There is, however, another side of the coin; the definition of education draws attention to the wide function of education, and one can argue that its prime function is to produce good citizens who, as well as being highly employable, can also use their increasing spare time wisely and if necessary, can stand back and indulge in healthy criticism of organizations and institutions, and can also pose pertinent questions and cope with a changing environment. Revans (1983) argue that in times of change when no one knows what to do, one needs not only what he describes as 'programmed knowledge' (P), but questioning ability (Q) and the skills to explore possible answers. Employees who concentrate solely on the efficient maintenance of the *status quo* are 'yesterday's men. Nowadays, individuals need to be able to think flexibly and across traditional disciplinary boundaries which is an argument for a broadly based education and an increase in the range of interdisciplinary studies. Furthermore, employee of the 21st century will have to have 'learned to learn'. This can be a function not just of *content* of syllabuses, but the *way in which* that content has been learned. The preoccupation with "test" results and targets do not appear to encourage attention to this fact. The concept of learning organizations has been proffered for some time, but there are still

comparatively few real learning organizations to be found. One of the reasons for this is the lack of the necessary skills and methodologies to create such cultures. Such skills and thought patterns are unlikely to be engendered by narrow vocational education.

Mistakes may have been made in the past, and some spheres of education may have tended to isolate students from the needs of industry, instead of encouraging them to take part in the creation of national wealth (on which, in the last analysis, our educational institutions rely for their own funding). However, an ability to think for themselves, to question, to think laterally and creatively, and to research, are all requisites of tomorrow's workers, and it can be argued that a broader education would provide wider perspectives, enabling employees to look at their job from the outside and take a more balanced view. We must not lose sight of the fact that academic education directed at making people think is an invaluable asset.

In making education more vocational it is important not to throw the baby out with the bathwater, and we must constantly bear in mind that tomorrow's citizens will require more than the sum of a collection of workplace competences.

## **EMPLOYERS AND EDUCATIONALISTS WORKING TOGETHER**

Any revisions to the structure and content of courses should aim to make education a better preparation for working life, but full benefit will not be obtained without a change of ethos. Although it is neither practicable nor desirable for the cultures of education and the working environment to be exactly the same, one way of assisting to bridge the gap between school and work is to bring these cultures closer together. In further and higher education greater collaboration can ensure that course design keeps pace with the changing demands of employment. However, the need is not totally one-sided; a better understanding of the educational system, the teaching /learning methods used and the objectives of tutors is helpful to employers in recruitment policies as well as in formulating realistic expectations of new entrants and providing appropriate initial training and induction programmes. At another level there is potential benefit to both parties from collaborating in research to solve organizational or industry-wide problems, particularly at the 'leading edge'. Universities and colleges can be particularly helpful to small and medium-sized business in terms of advice, research or use of facilities. On a local basis there are numerous examples of partnerships between educational institutions and industrial and commercial organizations, many initiated and sometimes pump-primed by relevant local authority to meet specific needs of the locality.

## **INNOVATION**

The term innovation has its roots from the Latin word 'innovare' meaning to make something new. Current understanding is that innovation is a process of turning ideas into opportunities for value creation and putting those into widely used practice. Roberts (1988) defines innovation as the successful commercial implementation of a new idea or invention. New ideas come in many shapes and sizes. A new idea applied to the work place might make some

minor difference to daily routines (the scheduling of a weekly team-meeting, for instance)--an incremental process innovation--or it might radically affect the nature of the organization and the industry it competes in (e.g. as in the example of Amazon and the book trade). One can think of innovation as happening across a wide continuum – from incremental to transformational – and within a very wide set of contexts – including product, service and process innovation. Other types of innovation include technological, organizational and strategic innovation. The latter two categories occur in both the organizational behaviour and strategic management literature applied to large companies and increasingly associated with corporate entrepreneurship in companies in mature or maturing industries.

Innovation policy is commonly defined as a set of policy activities to raise the quantity and efficiency of innovation activities whereby innovation activities refer to the creation, adaptation and adoption of new or improved products, processes or services (Technopolis Group, 2008. Sectoral innovation systems : The landscape in the EU25, February, INNOVA p.1). So-called ‘third generation’ innovation policy is increasingly cross-cutting i.e. horizontal, therefore linking in with other policies on research, education, training and health. (Ibid.p.2). It is not enough to have a single innovation policy, but this needs to integrate with policies relating to all sorts of other societal issues.

Freeman, C. (quoted in Science & Technology for Development Module, IDRC 1980) has proposed a classification of innovation strategies for a firm -that takes into consideration issues such as the firm's performance of fundamental research, applied research, experimental development, design engineering technical services, scientific and technical information, and so on. Freeman's classification is discussed in detail below.

The "offensive" strategy is designed to achieve technical and market leadership by being ahead of competitors in the introduction of new products and processes, which requires strong in-house activities in science and technology. The "defensive" strategy aims at not being left behind by competitors rather than at being first in the world, and still requires a substantial in-house scientific and technological effort. The "imitative" strategy involves the deliberate imitation of innovations developed elsewhere, often through the purchase of licenses and know-how from an "offensive" or "defensive" innovator. The "dependent" strategy involves the acceptance of an essentially subordinate role notation to other stronger firms. The "traditional" strategy involves little or no innovation in products and processes, because the market does not demand innovation or competition does not compel it. Finally, the "opportunist" strategy involves identifying and exploiting a niche not requiring in-house scientific and technical capabilities.

The adoption of a particular strategy, or mix of strategies in large diversified firms, has important implications for the performance of scientific and technological activities within the firm. Problems such as the minimum critical size for R&D efforts arise, for there is evidence that a particular level of investment is required by an innovating firm before it reaches a threshold beyond which it is able to exploit scientific advances (IDRC, 1980, p.10)

## Theories of innovation

Theories of innovation have been at the centre of academic concern for a number of decades. Adam Smith's (1998) classic book on how to generate wealth stimulated a raft of research into aspects of innovation and productivity at work (originally published in 1776). Within the field of economics, classical and neoclassical innovation studies have continued to flourish, drawing on the machine metaphor associated with the physical sciences. Free-market forces, such as 'technology push' and 'market pull', are seen to promote appropriate developments for efficient economic alignment. Attention is on discovering the causal connections between various elements for the purpose of building predictive economic models. In contrast, the work of Joseph Schumpeter (1934, 1939) stimulated a more evolutionary perspective in which innovation was identified as a key driver of economic development. New products, processes, markets and forms of organization are seen to promote growth, and yet the question of why some innovations fail whilst others flourish does not lend itself to simple explanation. The call for companies to adapt and to be innovative to survive is frequently made, but what is the nature of the innovation process within organizations that drives company renewal?

Burns and Stalker (1961) conducted an early study into the nature of organizational innovation. Their classic work on 'The Management of Innovation' highlights the importance of matching organization structure to business market context. Their work demonstrates the importance of organizational design to a firm's ability to innovate and adapt to a turbulent environment. For example, their study showed how it is possible to construct two ideal types of management system. First, a mechanistic system deemed appropriate for an organization that uses an unchanging technology and operates in a relatively stable market. It is characterized by clear hierarchical lines of authority, precise definitions of job tasks and control responsibilities, a tendency for vertical interaction, an insistence on loyalty to the concern, and an emphasis on task skills and local knowledge rather than general knowledge and experience (Burns and Stalker, 1961: 119-20). Second, an organic form deemed appropriate for an organization that undergoes continual change and operates in a dynamic fluctuating market. This form is characterized by a network structure of control, authority and communication, a reliance on expert knowledge for decision making, the continual redefinition of individual tasks through interaction with others, and the spread of commitment to the firm beyond any formal contractual obligation (Burns and Stalker, 1961: 121-2).

Whilst this distinction has proven influential in the development of organization theory, it has tended to be used as a means of classifying and differentiating between opposing types of industries and company organization (for example, between the bureaucratic mechanistic system of public health services and the loose organic system of high-technology companies), without investigation of the potential for the two structures to co-exist within a single organization.

## Schumpeter's Theory of Innovation

Although Schumpeter remains within the conceptual framework of neoclassical theory (or rather, he supports some of the postulates of the classical economists like Smith, Ricardo, Walras, and Marshall), his thoughts on the instability of capitalism and on the central role that Innovations play in creating such instability succeed in expanding greatly the scope of the classical approach and its ability to understand the processes of economic evolution and technical change.

Schumpeter does not take issue with the traditional theory of Walras or Marshall; he considers it useful provided it is confined to the analysis of stationary or "steadily growing" processes where any disturbances that may enter are handled by what he calls "passive adaptation," that is, "adaptation within the fundamental data of the system"(Schumpeter,1964).However, he finds Walrasian-Marshallian theories insufficient when the business community under consideration faces new possibilities for action, which are as yet untried and about which even the most complete command of routine reaches little. He develops his theory of innovation to handle situations where the course of technical progress introduces disturbances, leading to a type of adaptation that consists of "changing the internal characteristics of the system."(Schumpeter, 1964, p.68)

Schumpeter defines innovation as "the setting up of a new production function" and introduces it as the main cause for the waves and disequilibria that characterize the capitalist system. To him "what dominates the picture of capitalistic life is more than anything responsible for our impression of a prevalence of decreasing cost, causing disequilibria, cutthroat competition and so on, is innovation, the intrusion into the system of new production functions which incessantly shift existing cost curves."(IDRC, 1980, p12)

Schumpeter's theory of innovation postulates three basic assumptions. First, innovations entail the construction of new plant and equipment - or the rebuilding of old plant - requiring no eligible time and investment. This implies restricting the concept of innovation to a change of the first order in the production function. Second, every innovation is embodied in a new firm founded for that purpose, primarily because "no firm which is merely run on established lines, however conscientious the management of its routine business may be, remains in capitalistic society a source of profit, and the day comes for each when it ceases to pay interest and even depreciation". Third, innovations are always associated with the rise to leadership of new men, including the case where a new man takes care of an old firm (which would be an exception to the second assumption). It is particularly interesting that Schumpeter also considered the case of giant corporations that are "shells within which an ever-change personnel may go from" innovation to innovation." In his view this process would become more important with the passage of time and would replace the system of "competitive capitalism" with a system he called "trustified capitalism". In his analysis of innovation Schumpeter awarded a most important role to the entrepreneur, whom he distinguished from the manager. For him "it is leadership rather than ownership that matters," and consequently his economic theories put

substantial weight on sociological factors (Ibid. p12-13)

In putting together the action of the entrepreneur, the process of innovation, and the evolution of capitalism, Schumpeter took a very important step toward a clearer understanding of the relation between technology and economic evolution, thereby enabling the neoclassical school to proceed beyond the framework provided by static analysis. Nevertheless, it is interesting that although he was confident that the disturbances brought about by technological innovations would not destroy what he considered the inherent economic instability of the capitalist system, he thought the social implications of capitalism would lead to its eventual replacement: "...capitalism, whilst economically stable, and even gaining in stability, creates, by rationalizing the human mind, a mentality and a style of life incompatible with its own fundamental conditions, and will be changed, although not by economic necessity and probably at some sacrifice of economic welfare, into an order of things which it will be merely a matter of taste to call socialism or not" (SCHUMPETER, 1971)

## **The Pace of Innovation**

The reasons why the pace of innovation seemed to be higher in some countries than in others were explored in the 1980's by Ergas, S., quoted in the economist (1992). Survey on innovation;11 January. p23). In above survey three interrelated groups of factors were identified: (a) factors that influence inputs to the innovation process, such as the quality of the country's scientific community, especially its educational institutions; (b) factors that influence demand such as receptive and interested customers; and (c) an industrial structure that favours intense competition to stimulate growth and provides some method for companies to spread the cost and results of scientific research such as through a government agency. The above conclusions are similar to those of Michael Porter when exploring the competitive advantage of nations (Porter, M.E, 1990, - The competitive advantages of nations, Macmillan, London)

## **Entrepreneurship, Creativity, and Economic condition**

The role of the entrepreneur has remained on the periphery of economic theory for many generations of economists. Many economic theories have left the entrepreneur out of the equation altogether until Joseph Schumpeter's significant work in the 1930's and 1940's which focused attention on the role of the entrepreneur in introducing innovation as alluded to earlier. It is Schumpeter's approach which has had probably the most significant bearing on how entrepreneurship is understood today.

In the context of researchers and educationalists, there is debate concerning the nature of entrepreneurship and whether there is such a thing as a distinctive field of study (Phan, 2004). While some aspects of this discourse may be 'academic' in the sense that entrepreneurs themselves are unlikely to spend too much of their time worrying about whether or not they are an entrepreneur, this continued focus on the need to legitimize the study of



entrepreneurship remains a hot topic in several journal articles and books (Stokes, et al.,2010). The huge interest in entrepreneurship education, from secondary school through to colleges to MBA's and executive training programmes also makes added weight, or pressure for clarity of perspective. Meanwhile, programmes in enterprise or entrepreneurship have grown exponentially worldwide. Many degrees now include some kind of entrepreneurship-related module, as universities such as LIUTEBM University in Zambia, embed entrepreneurship and employability skills within the curriculum. Evidence that entrepreneurship education does help grow graduate start-up rates has helped to increase extra-curricular content and support (Stokes, D. et al., 2010 p.14).

## **Entrepreneurship versus the Entrepreneur**

Entrepreneurship and entrepreneur are closely related concepts and they are used interchangeably. It is however, noted that the two concepts are concerned with basically different aspects of a phenomenon. When we talk about entrepreneurs we are usually interested in their particular behaviours, attributes and skills. When we talk about entrepreneurship we have a process in mind – a process which involves specific outcomes relating to the introduction of new economic activity.

Human beings have behaviors, attributes and skills which can be developed through learning, that is, entrepreneurial education. However, entrepreneurship - as 'the identification, evaluation and exploitation of an entrepreneurial opportunity' (Shane, 2003), for example - involves both *agential* actions and *social structures*. (Porpora,D.1998;quoted in Stokes et al.p30). Agency refers to the capacity of individual humans to act independently and to make their own free choices. Structure refers to those factors such as class, religion, gender and ethnicity, which seem to limit or enable the opportunities that individuals have.

There has been a tendency to explain entrepreneurship in terms of the potential of individuals to act freely and be 'entrepreneurial'. This agential view is sometimes referred to as a *voluntaristic* perspective. It contrasts with much of the research on small business and entrepreneurship which is more *deterministic* in nature (i.e. associated with a structural view), and emphasizes the role of social structures and institutions in influencing what individual entrepreneurs can and can't do. Entrepreneurship involves individuals, groups of individuals, organizations, industries and society as a whole. As a social process it cannot be reduced to human behavior, cognitive processes or decision-making alone.(Stokes, et al.,2010, p31)

To the extent that entrepreneurship involves the production of new and innovative products and services and the creation of value for those involved, it is clear that we need to understand who and what is involved in bringing about 'new' and 'innovative' things. In short, we need to take a closer look at the concepts of creativity and innovation.

Notwithstanding the many different definitions applied to the term creativity, there is general agreement that it depends upon two central characteristics which are rooted in a Western

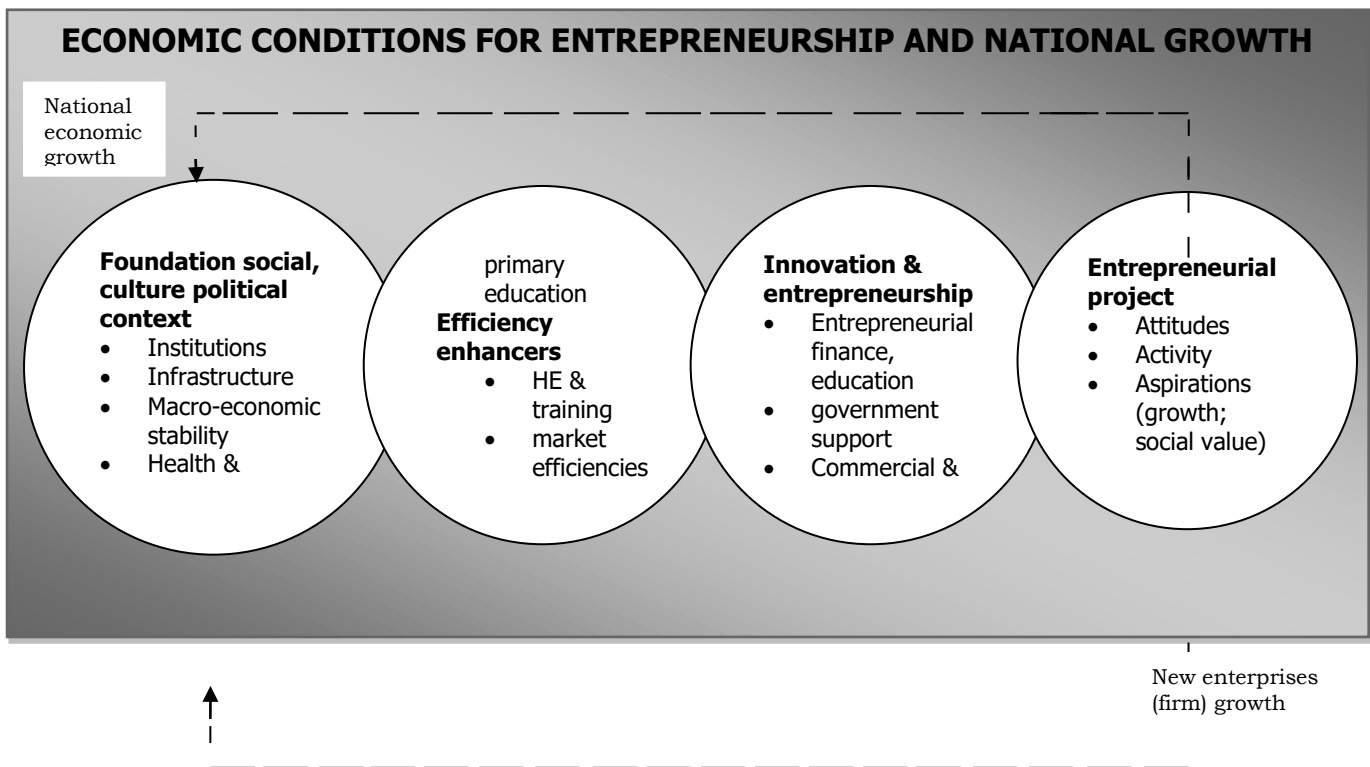
philosophical tradition (Bilton, 2007). The first of these is difference or novelty. The second characteristic is individual talent or vision which is expressed through creative individuals. We are all very familiar with this way of looking at creativity - after all, we tend to associate creativity with especially talented musicians, actors, film-makers, authors, scientists (even entrepreneurs, perhaps). According to this line of thinking - which is characteristic of most of the business management and related entrepreneurship literature - creativity can be understood as the generation of new ideas (Cox, 2005) or as the 'ideation' component of innovation (West and Farr, 1990). Whilst creativity is all about coming up with the good ideas in the first place, innovation is 'the successful exploitation' of these new ideas (DTI, 2003)

Creativity is not just a useful or desirable component of entrepreneurship, but it is in fact a central feature of this phenomenon. Without creativity (in the sense of generating new and valuable ideas) there would not be any entrepreneurship. In every case, therefore, the conceptual starting point for entrepreneurship must be our individual creative potential. As sentient human beings we are *all* capable of generating new and potentially valuable ideas. Everyday usage of these terms has given rise to some misperceptions of what they actually mean. Creativity is associated with certain individuals (e.g. Mozart, Einstein, Picasso) who bring something new to the world. The entrepreneur is also seen as a special individual, but someone who delivers *economic* value, that is they normally make money for themselves or for others. Innovation tends to be understood more at the level of products/services, organizations or society, and we refer to something as innovative when it is not just new but also economically valuable, that is, it sells well.

According to Stokes et al. (2010) a useful way of the entrepreneurship 'whole' is that it is made up of a number of separate layers (like an onion). One can visualize and explain entrepreneurship in terms of the separate successive layers, whilst noting that the whole is greater than the sum of the parts. In the light of the foregoing, Stokes et al. define entrepreneurship as the emergent process of recognizing and communicating creativity such that the resulting economic value can be appropriated by those involved. A key issue for entrepreneurs is how they can ensure that ownership of the innovation is not lost in the implementation process itself, in subsequent diffusion. Intellectual property strategy is often fundamental to this. Owning a patent or copyright, for example, could make all the difference between business success and failure.

There are clearly a wide range of underlying conditions that will impact the prevalence and success of entrepreneurial ventures and their subsequent impact on national prosperity. The model presented below shows some of the key factors (Bosma et al. 2008). Almost in every society there is a modicum level of national infrastructure and institutional context. This provides a framework for possible entrepreneurial activity, and includes the provision of basic utilities, roads and transport connections, as well as telecommunications. It also includes basic levels of healthcare, and primary education in which first levels of reading and writing are attained. Without these in place the chances of developing new enterprises and job growth become greatly reduced. *Even countries* with a relatively low level of economic development

cannot be said to be devoid of entrepreneurship. Indeed, the level of *necessity-driven* self-employment (where individuals undertake entrepreneurial projects because they have either few or no other options) is particularly high at low levels of economic development (Bosma et al. 2008). As the economy develops, this level of necessity-driven entrepreneurship gradually gives way to *opportunity-driven* entrepreneurial activity (where individuals spot an opportunity for a new enterprise). This is known as the 'U-curve' hypothesis (Wennekers, Van Stel, Thurik and Reynolds, 2005).



Source: Adapted from Bosma et al. 2008----GEM 2008 Global Report

In addition to the foundation—level conditions are factors which enhance and constrain the level of efficiency in economic markets. Skills and knowledge are essential resources for economic development, and so the level and quality of higher education and training is crucial. Finance is another key resource which demands the presence of effective and efficient capital markets. At a time of 'credit crunch' where banks have reduced lending to small businesses and entrepreneurial ventures, it is all too easy to see the impact of an inefficient capital market on the potential for entrepreneurship. Country's stock of natural resources and its associated technological capabilities (its 'technological trajectory') also plays a pivotal role in the subsequent entrepreneurial activity undertaken.

With reference to innovation and entrepreneurship, and notwithstanding these more general

conditions for economic activity, researchers have identified a set of additional factors which are more explicitly linked to the development of entrepreneurial ventures, job growth and national prosperity. These include the provision of entrepreneurial finance; great interest in entrepreneurship education, encouraging and enabling enterprise and entrepreneurship policies and legal and commercial underpinning.

The general attitude of a population towards the concept of entrepreneurship, taking risk, recognizing opportunities, knowing entrepreneurs personally, attaching high status to entrepreneurs, and possessing the skills required to create successful start-ups are all seen to have a major bearing on actual levels of entrepreneurship. Particularly in Africa, the emergence of people like Dangote and Imo Ibrahim and others like them is transforming a society's attitude towards entrepreneurship and its importance in economic development. Clearly, the role of entrepreneurship education is important in this respect. It is also interesting to note the tremendous growth of interest in entrepreneurship in the popular media and governments' pronouncements across the continent.

**Education** appears to be a factor which influences the number of entrepreneurs, particularly in more developed countries, which have high levels of employment. Studies have identified that people who have stayed in education longer are more likely to be self-employed, and to be successful in self-employment (Robinson and Sexton, 2002; Harding, 2007). For instance, in the U.K and USA, people with more education in general and more enterprise education in particular are significantly more highly represented among entrepreneurs than others. People with access to enterprise education are twice as highly represented in the UK as those without such access (Harding, 2007).

Thus more formal educational arrangements within a society seem to help to create entrepreneurs. Stokes et al.(2010) conclude from these observations that entrepreneurs emerge from a context. Individually, we experience a multi-faceted environment from our earliest days, and this environment may promote or hinder our ability to develop our entrepreneurial capability. This seems to be because individuals in different countries are presented with different barriers to starting an entrepreneurial venture such as institutional arrangements, laws, education and other practical difficulties. The 2008 GEM studies make a compelling case for improving the institutional arrangements nationally and internationally which support entrepreneurship. Some of the influences already identified are culture, institutional support and arrangements, and education. Entrepreneurs in this view are not born, but made.(Stokes et al.,2010. p.159).

## **Entrepreneurship Education: Entrepreneurship is Learnable**

From the previous sections we learned that entrepreneurship can be learnt that is there is something called entrepreneurship education.

Entrepreneurship education encompasses a wide range of information and many different styles of study. Most business schools have modules or courses on aspects of entrepreneurship, typically focused on developing a business plan for a new product or service. The business plan integrates various aspects of learning about enterprise development: the production of financial forecasts; consideration of sources of funding; market research and marketing plan; these are useful knowledge areas, and an individual considering starting a business would be well advised to develop some understanding of them. The business plan also has the advantage that it encourages the individual to investigate, develop, and articulate their idea in a way which is coherent and able to be understood by someone else. Business planning has an educational value in relation to learning about entrepreneurship.

However, emphasis on the development of a business plan as the main preparation for starting an enterprise has been criticized (Sarasvathy, 2004). While plans help to clarify an idea and evaluate the conditions under which an idea might be successful, they also suffer from certain limitations relating to static nature of business plans and financial imperative as well as their prone to being overly optimistic in their forecasts.

While the integration of abstract business concepts into a business plan has its uses, entrepreneurs need to develop an understanding of practical issues relating to industry in which they operate, and the particular types of customers they are serving. An in-depth knowledge of an industry can provide an entrepreneur with many opportunities for innovation. Industries typically have their own competitive dynamics, which are made up of various factors, including number and relative size of suppliers, customers and producers of the industry, technology and changes to technology, etc. There are also other less theoretical or explicit knowledge areas which entrepreneurs may need to excel in as summarized by Gibb (2003). These include the ability to network effectively. Although some people may have a preference for extraversion, be more externally oriented and have a wide circle of people whom they call friends, this does not necessarily mean that they are effective networkers. Networking is a critical skill which successful entrepreneurs display. Through networking, entrepreneurs meet prospective partners, employees, customers and sponsors. They find resources, and work out how to bring them into their own enterprise. Networking is not a win-lose situation, as an important objective of networking is to find ways to build mutual success. Once again, this not innate but can be learned.

Handling the challenges or liabilities associated with creating something new is another area of knowledge that is learned once an opportunity has been identified and pursued. Some of these challenges include finding customers, building reputation, establishing positive cash flow and developing lasting competitive advantage. Again, these may be informed by

theoretical learning, but the experience of actually undertaking these activities provides the substantive lessons on which entrepreneurs build their knowledge base.

## **ENTREPRENEURIAL LEARNING: AT ODDS WITH FORMAL EDUCATION SYSTEM?**

One way of learning how to be an entrepreneur is to investigate how entrepreneurs themselves learn their trade, and imitate this process. To do this, we need to explore learning mechanisms in great depth as entrepreneurs tend to learn in ways that are sometimes at odds with formal education system. **Entrepreneurial learning includes experiential learning and peer learning. These are briefly discussed below.**

### **Experiential Learning**

One of the interesting aspects of entrepreneurship is the extent to which entrepreneurs learn from their experiences. Entrepreneurs often start many new businesses in their careers, and attribute some of their successes to the mistakes they made. Their ability to identify what went wrong or right and why is an important source of learning. Evidence that entrepreneurs learn from experience comes from two sources in particular:

The data on business start-ups and closures indicate that entrepreneurs are typically more successful with each venture they undertake. The majority of business owners who close a business start another one (SBRC, 2002) and those who do, have a greater chance of survival than novice entrepreneurs who are starting for the first time (Politis, 2005). Entrepreneurs themselves claim they learn more from their failures than from their success. This is not a unique feature of entrepreneurship. We all learn from experience but entrepreneurs tend to learn from particular types of experience.

**Experiential learning theory** (Kolb, Boyatzis and Mainematis, 2000) puts forward the concept that learning only occurs when experience is transformed into knowledge. The theory describes two means of acquiring experience as follows:

**Concrete experience** - participation in, or observation of, a real event.

**Abstract conceptualization** - information derived from the experience and knowledge of others. These forms of experience can be transformed into knowledge in two ways: **Reflective observation** - 'thinking about the experience.

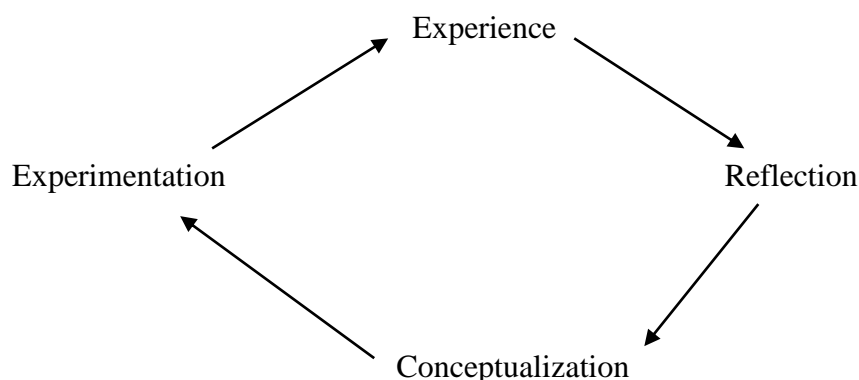
**Active experimentation** - testing out different ways of doing things.

These four actions form the basis of a learning cycle in which knowledge is gained, as illustrated in figure below. Concrete experiences are the basis of observation and reflection. These reflections are distilled into abstract concepts from which new implications for action can be tested and serve as guides for new actions and experiences (Kolb, Boyatzis and

Mainematis, 2000). A key point of this concept is that concrete or abstract experience is not enough on its own for knowledge to be acquired. A reflective or active transformation has to impact on the experience to turn it into knowledge. We can either learn from our experiences or continue to make the same mistakes. The majority of entrepreneurs do learn from their experiences, but many do not and repeat patterns that have caused similar problems in the past.

Experience can be of successful, unsuccessful, or neutral outcomes and positive learning can be gained from any of these. Kolb (1984) suggests that people have different learning preferences or styles, and notes that these correspond with the types described by the Myers-Briggs Type Indicator (MBTI) and other personality instruments. Entrepreneurs show a preference to learn from concrete experience transformed through active experimentation (Politis, 2005). They have little time for abstract theories and want to undertake practical tasks to learn. They also like to experiment and test their concepts in practice rather than reflect on them for very long. Rather than undertake detailed research before launching a new venture, many follow their intuition, introduce their idea into the market and see what happens. Often it does not succeed but the lessons learned are invaluable and lead to a more successful venture with appropriate modifications, or sometimes an entirely new concept. For this process of entrepreneurial trial and error to work most effectively, it is important for two conditions to prevail: First, the experience needs to be significant enough to attract the entrepreneur's attention. One cannot learn from something one has not noticed; second, the experience needs to be small enough to avoid negative reactions. If the experience is too traumatic, it may damage the entrepreneur's resources and confidence beyond repair. Politis (2005) has expressed this as a need for 'intelligent failures'.

## The learning cycle



**Source:** Kolb, David A. *Experiential Learning: Experience as the Source of Learning & Development*, 1984, p. 21. Pearson Education, Inc. Upper Saddle River

## Peer Learning

Entrepreneurs also make extensive use of peer learning. This approach, which is linked to networking, identifies the benefits which entrepreneurs gain from talking and discussing common issues with one another. Meeting with other entrepreneurs and debating in this way enables them to access one another's experiences and interpretations of experience. Through peer learning, the experience of one entrepreneur can be regarded as a resource that can be leveraged by others. (Stokes et al. 2010, p171).

## SELF-EFFICACY

The traits approach to discovering what makes an entrepreneur can be criticized for being insufficiently flexible to allow for personal growth through learning. Experiential learning theory takes an opposing view by placing experience at the centre of entrepreneurial learning, but it does accept that entrepreneurs have a preferred style of action-oriented learning. A further concept that synthesizes some of the traits approach with the experiential learning perspective of how entrepreneurs develop is self-efficacy (Bandura, 1997). This links psychology with action. The starting point for self-efficacy is that people share several fundamental capacities:

We can symbolize things, which enables us to make sense of our experience and provide structure and continuity for our lives. Symbols are the vehicles of our thoughts; we can learn from others - by observing them doing things, by imitating them and by using them as role models; we can plan things ahead and develop strategies for doing things which Bandura (1997) calls forethought; we can self-regulate; and we can reflect in order to compare, evaluate or learn. These capacities mean that we can use our experience and our observations to learn and shape our futures.

## In Lieu of Conclusion

Some of the key questions addressed in this paper are: What is meant by quality education? Is the definition of quality education universal or are there peculiarities about quality in Africa? Have the past reforms of education in Africa made significant impact in terms of quality? What are the relationships between quality education and entrepreneurship and innovation? What should be done to promote quality education for entrepreneurship and innovation in Africa, for accelerated socio-economic development and economic growth? The concepts of creativity, entrepreneurship, and theories of innovation including Schumpeter's and the relationships between them were explored through literature study.

Many definitions of quality in education exist, testifying to the complexity and multifaceted nature of the concept. The terms efficiency, effectiveness, excellence, equity, and quality have often been used synonymously (Adams, 1993). Considerable consensus exists around the basic dimension of quality education today, however. According to Obanya (2002) the most



distinguishing characteristic quality of education is that it is multi-dimensional concept. Quality pervades every action that goes into making the process of educating possible, every element of the activities undertaken in the process of educating, and the wide array of beneficial results of educational activities on both the individual learner and the wider society. UNESCO's expanded definition sets out the desirable characteristics of learners (healthy, motivated students); processes (competent teachers using active pedagogies); content (relevant curricula); and systems (good governance) and resource allocation (UNESCO, 2005).

The view held in this paper is that establishing a contextualized understanding of quality means including relevant stakeholders. Key stakeholders more often than not hold different views and meanings of educational quality. In fact, each of us judges the school system in terms of the final goals we set for our children, our community, our country and ourselves (Beeby, 1966). Definitions of quality must be open to change and evolution based on information, changing contexts, and new understandings of the nature of education's challenges.

Quality Education particularly formal education in Africa needs to be quickly assimilated and fully domesticated to serve Africa's need for the full development of its peoples, and for the overall development of the continent itself. This need was recognized right from the early years of independence and commendable efforts have indeed been made to reform Education on the continent. Well-meaning as these reforms have been their results have not been encouraging. Quantitative and qualitative issues have remained stubbornly unsolved as noted by Obanya (1999). Methods borrowed from sciences of economics and management have contributed to elucidating the problems of reform, but they have tended to scratch pedagogical concerns only on the surface.

In this regard, this paper argues for greater attention to be paid to pedagogical issues in education reform efforts. Thus, we should continue with considerations of the philosophical reorientation of African education; the refinement of educational policy; scientific planning and better programmed expansion; generation, allocation and judicious use of resources; cost effectiveness; and internal and external efficiency.

In addition, we need to pay particular attention to the level of general education and professional training of teachers/lecturers; appropriate educational materials and the ability of teachers/lecturers to create or recreate those materials; and the creation of conducive climates or environment for teaching and learning. Similarly, level of teaching should be raised. This implies that we have learners who have acquired the knowledge and skills and developed the concomitant attitudes, values and interest necessary for all-round and continuous self-development. Above all, efforts to regenerate Education in terms of its quality will be incomplete and short-sighted if Africa fails to emphasize those things that really matter. First, Education is about developing the human potential and so the people should be involved in determining its orientations and in making it work. Second, the concept of Education as schooling should give way to one which harnesses all possible structures and resources for

developing the human potential. Third, basic education as defined in Jomtien, Thailand in 1990, should be given the primacy it deserves. It should become more accessible, equitable, available, solid and should be the base for continuous self-development. Fourth, massive investment is necessary, for more of the same or little more of the same will not yield the desired results. Fifth, Education in Africa should be strongly ingrained in African cultural values. ENCULTURATION has to become once again its primary goal. This does not EXCLUDE other tangible goals of Education like acquisition of knowledge, both explicit and tacit, skills and LEARNING HOW TO LEARN. Neither does it exclude ADAPTING ideas from across the world.

The key to Africa's chance to be in the premier league in terms of innovation and entrepreneurship and educated people who are better able to innovate, lies squarely in quality education and training. The vocational educational system at secondary tertiary level needs to improve significantly and so should the academic standing of many of African universities, both public and private. We emphasize the need for a greater concern with the needs of the economy in light of the challenges of industrial change, and suggest a number of areas for action:

- a) Developing total competence in people; better balanced curricula a broad spectrum of competencies. Preparing people especially the young, and society for a lifetime of learning.
- b) Adopting quality concepts in education and training: quality principles in training, systematic assessment and effective methods.
- c) Stimulating learning cultures in organizations; the advancement and continuous development of the workforce.
- d) Giving special consideration to the education and training requirements of small and medium enterprises (SMEs).
- e) Matching R&D investment with appropriate education and training efforts; developing scientific and technology literacy, adequate balance between research and education in university staff; multidisciplinary research of relevance to society and exploitation and dissemination of R&D results;

The time for the university community to preserve the unsustainable organizational culture and continue business as usual is over. As observed by Manuel Castells (1991) "The key is to understand that the most important infrastructure in the economy of our age is the human brain and the collective capacity of a given society to link up its brain with the world's brains". It is not a question of whether education, but of what type of education. The paper has attempted to illustrate the kind of education that may contribute to expanding the general well-being of people on this continent in its broadest sense.

The issue of quality education for entrepreneurship and innovation is particularly important for Africa, where a critical mass of entrepreneurs is needed. Besides the fact that entrepreneurs are often driven by the need for achievement, they( entrepreneurs) also need

the right mix of management skills, that is, those related to the qualification of goods and services, and those required in the organization of tasks. Such skills are essential in order to sustain the level of business required, often in a changing market context ,and to appropriate the value involved. Similarly, gleaning from the research literature, the paper draws attention to entrepreneurial learning that is learning mechanisms that are sometimes are at odds with formal education systems. These include experiential learning and peer learning. A further useful concept that synthesizes the traits approach with the experiential perspective of how entrepreneurs develop is self-efficacy (Bandura, 1997).This links psychology with action. The concept of self-efficacy entails having the self- confidence, knowledge and self-awareness to believe that you can do something. In the case of entrepreneurship, this may mean starting an enterprise or developing an entrepreneurial project. Fortunately entrepreneurs are not all born entrepreneurial. Entrepreneurship is learnable Many develop through a process which includes various sources of learning, embracing national, social and cultural influences, the prevailing legal and economic environment and the available formal educational opportunities.

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