Technology Education and Sustainable Livelihoods

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The Context of Education

To go on or not go to school has today become less contentious amongst ethnic communities in Kenya and I believe in most African countries. Towards the independence period, literacy or illiteracy were important campaign points used by those who were coming to power. It took a while with lots of doubts for many parents to accept schooling as an important means of acquiring knowledge. Not that indigenous communities did not have their valid and often very relevant systems of education. They truly did but the point was, if they wanted to rid themselves of scourge of life as disease, ignorance and poverty, they had to adopt a new system of education and send their children to school. The system used by the communities over the year were in most cases declared primitive and worthless.

After 30–40 years of independence with all kinds of adaptations/adoption these very system of education are being debated and doubted. There have been review and more reviews are till being called for. In Kenya, systems of Education have switched round, and even the 8–4–4 system of Education which was launched in 1985 as a problem-solving, practically oriented education system suited to self employment is almost being thrown out. Not with standing the positive moments of growth, it is a fact that there are more serious problems that have been exacerbated by the philosophies and system of education. The world and its resources are currently critically threatened. It is uncertain how much longer life will remain on earth if certain habits and initiatives are not checked. This is why in our communities there is concern about the trend of things. They are continuously getting worse, right from the natural resource base, the economy; health even control of people's destiny. In many ways life is threatened on earth.

On the education front, already the value of school subjects must be questioned. To what extent are these subjects contributing to the mess in the world or might

they be the sevior. What should be the main considerations for growth of a subject and it's introductions into the school curriculum. Which subjects should have more time in the time table and why? What would be the order of priority in which subjects should be taught in the school timetable? How should community need and genuine challenges in life be matched with school subjects? Which subjects are more prone to tackling problems in society and to what are they taught in the schools? These are genuine concerns that are being mentioned in most for a. As it were going to school today does not ensure or guarantee a job and in many ways it does not prepare people well enough for any form of occupation. To many parents/communities there is a great mismatch between expectations of education and the surrounding realities, which are manifested in form of poverty, health problems and destruction of the natural resource base. The wonder is, should these communities revert back and rehabilitate the indigenous system of education to help rid themselves of these problems? This is a question that is pending in the minds of many. In fact as many allude, the world would today be a better place if different cultures were allowed to develop and form basis of world development. The unique talents in different societies would have had a chance to evolve and take care of needs of lives in their space. This is to say that perhaps one of the oldest subject disciplines as part of day to day activities has been technology education. Wherever it is whichever encounters, human life has a lot to do with solving problems in order to survive. Technology education must therefore be an important core subject in the school curriculum; and in fact it is its absence in most systems of education that has resulted in the many problems experienced.

The Responsibility of Technology Education

Arising from concerns of different communities (of the world) about ensuring quality of life at all times, and the state of the natural environment which is speedily being destroyed, there is a genuine concern on developments of Technology. How should Technology Education impact on technological developments in society to ensure sustainable livelihoods. Is there a role for technology education to ensure sustainable livelihoods? As we all know, in most cases the developments of technology are intended to improve/extend the capacity of human want which did not fully translate into sustaining life. It only helps up to a point, and then it become counter productive. There has also been a lot of exploitation and destruction of nature that has accompanied and resulted from technological encounters. So that if the subject Technology aims at refining technological capacity, the nature of problems tackled or proposed and to whose benefit has to be addressed. The process of technological activity must be related to

all the realities that surround the identification and utilization of resources. And the purpose for which a solution is sought must be a matter of debate, before sanctioning of the activity. Technological capability must not be left to be a creative process where talent is employed to tackle any problem in sight without assessing the possible impact on life and nature.

Take an example of wanting to make paper to facilitate writing: Most paper is made from certain trees. If the exercise to come up with paper from a tree is achieved, then that must not be the end. This is because after opening the discovery of paper people will be excited by its availability and the possible trade and income implications. But there is the questions of the source of the raw materials (tree) and where it will be grown. And it is just this because there is an issue also of biodiversity destruction to make space for the "paper tree". On the other side, there is the issue of the destructive nature of what comes out as waste in the process of making paper. Similar case could be mentioned of all products arising from the technology e.g., metal mining up to effluent arising from the process of producing products, petroleum based products, biological products, etc. Problems of the technological products even go as far as the impacts of their use e.g. planes, fertilizers, Z-rays, land mines, pesticides, etc.

It is clear that technology education has a wider scope than currently envisaged and a much broader responsibility in ensuring sustainable livelihoods. It is those creative individuals of all shades who will make or break the world with their creation if left loose without guiding principles.

Technology education must be focused on sustainable livelihoods. Because Livelihoods arise from the fact that nature is interdependent and you need other lives to survive. Hence all life are important and must be preserved. As a matter of fact sustaining livelihoods call for unique skills, knowledge, aptitudes, attitudes and experiences that are specific to given situations and space. A technology education curriculum should recognize this and build on it and not assume it. This is to say that forest communities knows more about the forest species, what each species is about an could be good for that other person and so is lake or coastal communities. With culture-specific technology education, they could make the most efficient and relevant technologies suited to fulfillment of livelihood needs. They would have specific ethics to guide their relationship with resources and care for the materials and sources for technological activities. The danger today is the universalization of techniques and technological practices which are translocated from other cultures. Together with technological supremace and domination it is clear that Technology Education in many curricula especially in Developing countries does not create the necessary impact in sustaining livelihoods which should be the principle objective. Technology education is not a subject like all other where relevance is not a critical question.

Principles of Technology Education

Although many school subjects have been left without specific guiding principles to help define boundaries and impact, it would be dangerous if technology education would be left that loose. Particularly when the subject is targeted to help build a capability to sustain life. It is felt that being new in the school curriculum, a lot more needs to be done. The following are some important principles;

1. Resources of the World are finite, hence their use or conversion into any form must be carefully restrained.

Currently control of the rate of exploitation of resources is weak and marred by that varying needs of different people. There has to be a way which ensures reduced exploitation to allow for continuous availability. The principle must be interpreted into all creative technological processes in the curriculum where the use of materials is paramount.

2. All life on earth is supreme and must be protected; hence any action which may injure or destroy it must be curtailed.

Technology Education, because it is founded on the use of materials which could be life or supports of life must be sensitized to finding a compromise, in the search for solutions to problems. If you have to cut a tree or destroy a vegetation which could be a habitat or support biodiversity a lot of care is required. These should be concerns for technology curricula since excessive use of certain materials disturbs natures equilibrium, and the products of technology like wise could be destructive.

3. Talent and creativity is a human gift and not the preserve of only a few people, hence each person must have the opportunity to unlease this gift while observing the limits of destructiveness.

It is true that human mind can come up with anything useful and equally destructive Technology Education must understand this and limit freedom in that direction.

4. Culture forms the base form which unique skills, knowledge and experience evolve, hence all technological practices must reflect its strength and origin. Technology education should maintain a search of cultural strengthen by being sensitive to cultural identity, dignity and integrity in any technological

innovations. Cultural base of different communities must be upheld at all times in trying to fund solutions for life problems

5. The World is a one-vast-interconnected world with unique characteristics offering all opportunities required, hence responsibility for action is for all, and not "us and them".

Whatever happens in one part of the world at some point in time has some impact in another part and back again. All technology education activities must pay attention to the responsibilities of solutions generated and their impact in all parts of the world.

Although these principles are broad and needs refinement, it is a fact that the world today require responsible action and a visionary approach.

Conclusion

Science and Technology have been recognized and given a lee way in contributing to national development, and it is true that from time immemorial they have been part of many world cultures. It is the belief in this paper that they have lacked a focus and only concentrated on humans one direction of solving problems at the experience of all other live. Given the kind of impact so far obtained from them, there is need to refocus again on them but with a critical concern on life and livelihood sustainability. This should be the main guide for Technology Education.

References

1) Achoka Awori, Acholla Kapiyo, R, Peter Karinge (1996), <u>UHAI: A model for sustainable livelihood and Natural Resource Management in Africa,</u> KENGO, NAIROBI.

2) Acholla Kapiyo, R. (1994), How can we combine Traditional Wisdom and Modern Technology? In <u>Traditional Wisdom-Modern Know How,</u> CODEL USA pp. 23–26.

3) Layton David (1992), Values in Design and Technology pp. 36–53. <u>In Make the Future Work,</u> Lognmann, London.