KNOWLEDGE   AND   TECHNOLOGY   TRANSFER

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Abstract

Knowledge and technology are not the same thing: one is an end in itself, the other is a means to an end. Everything that happens, happens first in the metaphysical and then in the physical. Knowledge belongs in the realm of the metaphysical; it is a perception; one example may be the realization that we have a need or a problem; technology is a gadget which we use in the fulfillment of the need or in the solution of the problem. The need or the problem is related to the whole or to the concept of ONE. In Yoruba mythology the story is told of Atundla who saw God on the side of a hill cultivating. Atundla took a huge stone, rolled it down the hill and smashed God into myriad pieces; but each piece is still a part of the whole. Liken a society to God: in order to alter any part in its relation to another (which is what problem-solving is) we first have to own the parts in their totality. This means owning ourselves. This is knowledge. The idea of total ownership can be seen in the society of the ancient Egyptians. They owned the land on which they lived and all its accretions, so that when a Pharaoh wanted a pyramid built, to solve some religious or societal problem, all he had to do was call on the skills of the architects, the mathematicians, the labourers, or anyone else whose service was necessary. In developing societies we do not have that facility because we do not own ourselves. The problem is exile, self-exile. The solution is simply a return to ourselves.

INTRODUCTION

The journey leading to a return to ourselves is a search for survival. In this quest knowledge is the compass. The Vietnamese built whole cities underground during the war with the Americans because it was necessary for their survival. A by-product of knowledge is power, for power has to be engaged in order to do the things necessary for survival. It is often said that knowledge is power, but equally true is the converse, power is knowledge: if we do not have the power to implement what we know, then that type of 'knowledge' is of no use; so knowledge has to be realized in action. In other words you do not know until you do. But action is contained in time; and sometimes the applicability of a certain type of technology is not immediately obvious. One therefore has to discriminate about which type of technology will be useful and which will last. Since none of us have total vision, the matter of what will be kept and what discarded is a political decision. Knowledge and technology have to be kept, defined and re-defined inside the parameters of an organization. This organization may be a village community, a company set up for business, a scientific community, or a nation. During the course of history we may observe that when two nations are at war, the one with the superior technology generally conquers; but this is not always so (think of Vietnam and

Cuba vis-a-vis the U.S.). There are other variables that come into the equation; for instance, the level of organization reached, or the will of a people to survive.

First and foremost then is a fundamental question which has to be asked, whether one should import technology at all. Some people argue that it is responsible for the under-development of local skills, that it traps the receiving country in a syndrome of dependence and debt resulting in corruption, vast economic and social inequalities and a labour force that is unskilled and marginalized. Furthermore it leaves the developing country in a weak bargaining position. Others say that mankind on a whole is on a constant quest for advancement and that some nations are ahead of others. The forward thrust that the scientific method has launched on mankind is inexorable and that eventually even the most primitive tribes will be enmeshed. These people think that industrialization is a panacea for all ills and that the only way forward for poor countries is in the transfer of technology.

BODY OF ARGUMENT

If we assume that development comes with the transfer of technology, the question then for developing countries is how is technology to be transferred without a surrender of national independence. There are three things to consider:

1. We are a global system and there is no need to transfer technology;
2. Can technology be transferred at all? ;
3. If it can be transferred, under what conditions and with what responsibilities both to donor and donee.

Consideration 1

The first consideration assumes an equality of position and that we are on the road to jettisoning nationalism. When America puts a man on the moon, it is the achievement of all mankind, not only America. Consider that the developed countries consume 80% of the world's resources; it is reasonable to conclude that we all share in the achievements of those countries. In the U.S.A. we may observe that the Blacks and Hispanics are sharing more and more of the American dream; and we may also observe that products from industrialized societies can be found all over the world. For instance, there are telephone companies in the U.S.A. and Canada that offer services to sixty countries.

However, there are certain imbalances that lead us to conclude that we are not living in a global system. For one, why are so many people in the world poor and why are they concentrated in certain areas, mainly Africa, South America and some parts of Asia? Look for instance at the figures for AIDS. When the disease first broke out in the U.S. the life expectancy for people who contracted AIDS was five years. Nowadays, it is twenty-five years. At the same time there are twenty million people in Africa infected with the disease and these have no medication to control it. When we look more closely, we may observe that some inside the industrialized world suffer from the same lack as those outside it, mainly non-whites; so, in fact, we are not even looking at nationalism: it is whites on one side and non-whites on the other.

Even more diabolic is the fact that a so-called global system shuts down the initiative and the creative power of some members of the planet. Some people may argue that this has always been the case, and even if the abused become revolutionary, a change of leadership will only result in a re-shuffling of the old order.

Consideration 2

As for the second consideration we have to take note that technology is not something that is separate from the rest of society. It evolves according to the social pressures that force it into existence. The basic problem with technology transfer is that it is not only technology that is being transferred. Often there is no infrastructure to receive it, like an adequate network of roads, water supply or matching electrical voltage. Even when these are in place, there is still the problem of maintenance and trained personnel. So in the end there is a whole complex of services and equipment that have to be provided. In fact a whole culture, a way of life has to be transferred; so you may have a city like Santiago de Chile – a North American city in South America. When you go into a bookstore there, you may see the same books as those sold in a bookstore in New York. So there is little or no attention being paid to indigenous development, and those local people who join the North American system are merely in exile. This may have some very serious consequences in human relationships. The following extract from a play I wrote called 'Man A Yard' may be instructive here. Thomas, the lead character, is looking to buy a part to fix his van which he has to use for his clothes manufacturing business, but can't find the part in Jamaica where he lives.

"I say, I would walk out the whole Jamaica and can't find the part for the van. One piece of wire leading from the coil to the distributor and you can't get it! Can't find one piece of wire in the whole Jamaica? I say, if I could think myself into a piece of wire, I would just drop into the place, take my mouth and hold on to the coil and just pin the top of the distributor between my big toe and the next toe. The only thing is that I would have to stay in that position for as long as the van is driving. (demonstrates) You can imagine me from Kingston to Montego Bay? My father! Then by the time I make it back to Kingston, I couldn't touch my wife: I would have so much kilowatt inside me I would kill her. But between you and me this country is a thinking country, you know. You want anything, just think that you have it! You think I am joking? A-ho! Well the other day a man came to me and said, 'Let you and I go lend Caymanas Park (racing track) ten thousand dollars.' He has to be only thinking that, for where am I going to find ten thousand dollars? But better than that, the other day I went to look for a friend of mine. When he opened the door and I went inside, I noticed that this man was looking at me with one eye. So I said to him, 'What has happened to your eye, man?' He said, 'Oh, I did think I was in New York and peeping out to see who it was and I forgot to open back the eye.' I say, it looks like all of us are looking at each other with one eye. We think that we are thinking, but we don't think that nine/tenths of the things we think we have, we don't have at all! Look at all my van now, I don't have it; I only think I have it, for if one piece of it is missing, I can't put it back. No, this could never be mine; I am only borrowing it. It looks like the only thing I have are my feet, and it looks like the only thing I can do with them is run, run to another country. (sighs in despair) Oh boy, my business! Better I had used wood to burn coal; at least I would have a donkey to carry the load. (At this moment his wife enters. He turns to the audience and says), 'Look on this one now; all she, I only think I have her.'" If one of the parties in a marriage (which in this case the woman is) is sold on a foreign technology, the marriage may even disintegrate.

One's mind goes to the film, The Blue Eyes of Yonta, directed by Flora Gomes. It tells about this ex-soldier who fought in the war in Guinea-Bissau against the Portuguese. In the post independence era he fell in love with Yonta. He was interested in building a new Guinea-Bissau, but all Yonta wanted was what the Portuguese had.

Then sometimes parts are imported from different countries and they can't harmonize. I had an engineering friend who was involved in a project to supply water to a certain city in Jamaica. Pipes were imported from different countries. They couldn't fit. Several alterations had to be made involving welding, filing and actually cutting some of the pipes. I myself at one point taught at a teacher-training college. I had to use electrical equipment from time to time. The wall plugs in the separate buildings were all different: some of them were two-way, some three-way; and the three-way ones were of different sizes. So I had to be walking around the campus with an adaptor.

I once sat in a fast food restaurant in Jamaica for two hours having lunch. Of course we adopted the idea of fast food from America. I didn't understand what fast food meant until I went to work in America. I worked as a courier and had to deliver mail and parcels as quickly as possible. It was then I understood what fast food meant. I barely had time to stop at a McDonald's or Burgher King drive-through window, pick up my lunch and eat while I was driving.

Sometimes over-investment sends up the cost of certain services with negative economic results. Take, for example, an airport like Norman Manley International in Kingston, Jamaica. About 1.7 million people pass through that airport annually. It makes no sense installing a very expensive so-called 'modern' system for servicing traffic in the car park comparable to that set up at O'Hare airport in Chicago, U.S.A., which services about 70 million people annually. Sometimes in an effort to keep up with the Jones's we make stupid choices and don't understand that sometimes being modern only means being American. Again in Jamaica in some instances a very expensive process (involving machines imported from abroad) is used to extract oil from the coconut. The result is that the local man cannot afford to buy the oil. It's better for him, economically, to use the traditional method of boiling oil from the coconut milk. Sometimes too the technology we import from other societies is obsolete, so that we are receiving at a cost technology that other societies have discarded. In fact we are buying their waste. That money would be better spent on doing research for local alternatives.

All these are examples of a lack of wholeness, a lack of oneness in so-called developing communities. All these are examples of when technology cannot be transferred, or should not be transferred since it leads to a certain obtuseness in the receiving society. When therefore is technology appropriate, when can it be advantageously transferred?

Consideration 3

All mankind share a common destiny, but there are differences in race, geography, climate, religion, culture and so on. There is no need to re-invent the wheel. A watch is applicable to all cultures, but you have to change the time and the lettering according to where you are. The trick is to find the axis where the universal and the particular cross. This is appropriate technology. You can read Jewish or Polish or Chinese or the history of any people for that matter, but don't read it as if it's your own history. It is your history only in so far as you are a part of the history of mankind, and we will be one when we get to heaven, but for the time being we have to think about appropriate technology. Technology then can be transferred, but it has to be altered in order to suit the particular.

There are many factors militating against this type of transfer, the chief of which is economic. Technology transfer is hooked to commercialism. It is as deeply entrenched as private ownership of land. In the old days knowledge was guarded by secret societies; nowadays we have to deal with patents and trademarks and licensing and copyrights. There are all sorts of

legal and political ramifications. Don't forget that Julius and Ethel Rosenberg were executed for passing atomic secrets to the Russians. The U.S.A. is the only truly capitalist country in the world. There the system is integrated. Both knowledge and technology are transferred from university labs to the commercial marketplace. The government is a stakeholder in the whole process providing the legal framework for the transfer and participating by funding research. The progression is from science to technology to systems protected by laws. In addition to this the impression is given that things have to be done on a macro level, so that a simple service like solar energy has to be provided through a huge corporation. So a façade is built up inducing some people to think that industrialization is the means of eliminating poverty, but this is not necessarily so. If those using technology in the developing country are merely acting as agents of a company based in the developed country, then unemployment will increase as machines often replace manual labour. If the political agenda in the developing country is to build up national independence, then the technology transfer has to be done in tandem with the building up of a domestic technological base with skill development and fiscal policies supporting it as priorities. Local personnel have to be involved at every stage of the transfer as learning by doing is the only way to entrench a system of production. Then whatever the product a local and export market have to be developed, so that know-how and money is coming from within.

In Jamaica many years ago a man found a method of making gasoline from a particular type of soil. I never heard anything further of that invention. He was probably paid off. In Nigeria, also many years ago, there was talk about British and Russia involvement in the smelting of iron ore. People were asking why the need for British and Russian involvement when Nigerians had known how to smelt iron ore for centuries.

Nowadays with the international reach of the internet it is far more difficult for individual nations to control information, but we need to bear in mind that behind every technological advance is the political agenda of controlling the marketplace. We in the developing world have to be very sensitive to that and have to do everything in our power to save our communities from continued poverty.

The transfer also has to take place inside a cultural context. In this context use of a local language is critical, since language (like money) is a tool of power. Whenever there is an innovation or any breakthrough in technology in any part of the world, one of the first things the Japanese do is translate the information into Japanese. The same thing with the French. When I was in northern Nigeria and coming into contact with Hausa, I was very surprised to find out 'Haca ne' in Hausa means 'it is so'. It was the first time I had heard 'ne' used in a positive sense; for all the European languages, with which I was familiar, had 'ne, not, non' as negative. So I was wrenched into another frame of reference. In Jamaia, where I am from, it is my contention that the constant use of English (instead of Jamaican) leads to a dissociation of sensibility which cramps creative thought, which we need in order to create appropriate technology. We all know the power of the word, so let us start using our word. The trend has already started in Africa; let it continue.

The matter of the transfer of appropriate technology is really a matter of power. If we agree that standard of living is a state of mind, that it has as a by-product the development of a people's skills and their ability to solve their own problems, that national dependence is too heavy a price to pay for technology (for the soul of a nation is at stake and the standard of life, despite all the gadgets that may be available to some, may be reduced to nil) then we will realize it is a matter of power and no one culture is intrinsically better than another and

that the rich depend on the poor as much as the poor depend on the rich. It is a matter of the price that one will pay in order to live in the twenty-first century.

CONCLUSION

If you go to northern Nigeria, you will see two cities, one juxtaposed beside the other, old Kano and new Kano. Old Kano was built, I understand, about eleven hundred years ago. The streets are narrow; they were not built for motor cars; and things like electricity are put in in a very patchy sort of way. The new Kano has broad boulevards with traffic lights and huge department stores with escalators and the like. What lies between the old Kano and the new Kano is the slave trade and the industrial revolution. It is as if Africa were taken out of time, her growth truncated for about three hundred years. But Africans did not disappear – at least some of us; our labour was being used to develop other people's civilization. And let us not forget that black people are credited with many inventions during this period! The overall structure of western society, however, hardly permitted us to benefit materially from our own labour.

There is a two-pronged solution, which is already in progress; it is based on:-

1. What white civilization owes us; and
2. What we owe ourselves.

These two components have to merge into one, which is where this paper started, in order to achieve harmonious living. This is why the continent of Africa is so important to black people living anywhere in the world; I don't see it being achieved anywhere else. We have to retrieve from the white world the labour that was taken from us and combine that with our own creative resources; but everything should be under our own control so that we can use it for our own well-being. That's the only way we'll ever achieve full knowledge and appropriate technology.

If there is no gain in the transfer of technology it's due to a lack of knowledge of who we are and our place in the world of today. But realization is not enough; we have work to do. In the transfer of technology there are several things to consider. Some of these are:

1   What is to be transferred. A data base needs to be set up in order to guide us as to what is available, what is appropriate and what is doable,
2   A higher level of education in the developing countries. Systems are becoming automated at banks, libraries, airports, supermarkets etc. The general population need to be able to operate these systems. Plus there are a whole range of specialized skills that are needed: engineers, technicians, tool and die-makers, machinists, managers, scientists, etc.
3   A type of government that will put into place institutions that will facilitate technological development, like those managing resource surveys and development, those doing research, those managing financial institutions. Government should also have a hand in ensuring that contracts are beneficial to the developing country.

Finally, the ball is in our court and we have to take the ultimate decision concerning our own destiny. We cannot depend on others to be doing for us what we ought to be doing for ourselves.