

PARTNERSHIP TECHNOLOGY EDUCATION WITH INDUSTRY: A DEPENDABLE APPROACH FOR ECONOMIC REHABILITATION AND RELIANCE

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Abstract

The rate at which scientific knowledge explode and the place at which technology is rapidly changing, demands much more than school science to catch up with industrial processes. In order to bridge the gap between school science and industries for economic rehabilitation and reliance, cooperation between the two partners in progress should be developed and given the sanctity of curriculum approval. The writer discusses his modest experience, need for curriculum reforms as well as teachers' roles in-partnership, The paper further highlights a model of school - industry partnership. Finally the paper talks about the possible benefits and hindrances of the approach and ends with recommendations for the success of the approach.

Introduction

Today, through the appropriate application of science and technology, distances in geographical and spatial terms are fast shrinking. The world is now a global village and even through economic rehabilitation it will shrink further to a global household. Technology is an inseparable part of our social life and its essence is to transform the world around us as to satisfy our needs.

Today's teachers of technology are dealing with more sophisticated electronic gadgets- and vastly exposed to television and telephone that give them rich experience and background. Technology teachers are therefore under pressure to be creative, innovative and inventive. The pressures bring about different forms of frustration, particularly when all efforts to achieve positive learning fail due to inadequate and obsolete strategies.

It is against this background of the pressure for creativity and innovation that a partnership technology education with industry as a dependable approach for economic rehabilitation and reliance is articulated to minimize the frustrations. The approach or strategy seeks new ways of creating " a dialectic process" between technology teacher education and the industry. This dialectic process is built on the premise that "no educational system can rise above the quality of its teachers",

Since the technology teacher is the major building block in man power production for technology advancement and economic rehabilitation, the application of a cooperate programme deserves priority attention by our policy makers,

My Modest Experience

As the head of science in 1989 at Government Secondary School Birnin - Yauri, Sokoto State, now Kebbi State, I developed together with my wife also a chemistry teacher, a modest working relationship with near-by local industries and laboratories. These are: Oil Mill (vegetable) Industry, Soap and Candle Industry, Blacksmith Industry, Water Board Laboratory, General Hospital Laboratory and fishery Laboratory. All of them gave us a good access to (their facilities, operational details, and cooperation from staff.

The school took advantage of relating lesson content to actual practices in the industries/laboratories. I noticed the enthusiasm and relevancy in students from what was taught in the classroom and the actual industrial experience.

Science and technology became practical and lively. It is interesting to note that some of these students ended up working in some of those places.

The experience we had, demonstrated that given the right conducive atmosphere, schools and industries linkage could attain the economic rehabilitation and reliance of a nation. Students could develop positive attitude towards the partnership approach. As claimed by Vrtnaenik and Glazer (1999) the case of Slovenian experiment on schools and industries partnership in a small village called

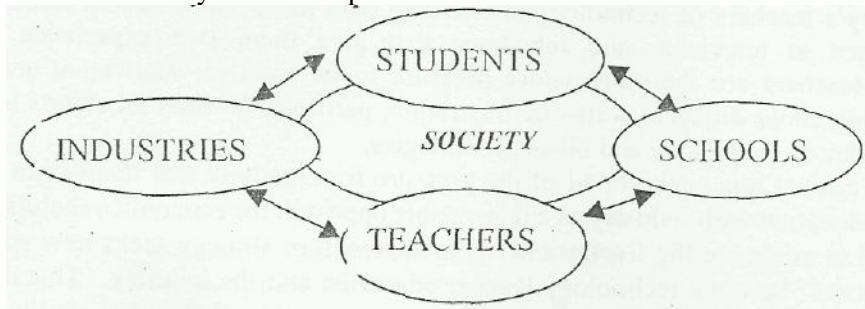
Kirka did amplify the prospect of such cooperation in wider economic rehabilitation and reliance.

Need for Curriculum Reform

The curriculum reform the writer is suggesting is one in which in essence merges school science with industrial processing. Technology teachers, students and industrial scientists working in harmony in a kind of symbiotic relationship, each contributing towards economic reliance of one another with which in the end would be reflected in the economic rehabilitation and reliance of the country.

According to Barm (1981); Okwu (1981) and Ikoku (1982); curriculum should gear towards learning of principles related to industrial process and not a collection of facts to be memorized. They further stated that sixty percent of the total learning situation should be devoted to students projects and school industrial partnership. Forty percent to theoretical lessons including guided student practical. This is to provide enough time for students to think individual:/ and collectively towards tackling problems which require scientific approach.

Model of School — Industry Partnership For Economic Rehabilitation and Reliance



Source: Ministry of Education. Science and Technology Brinin Kebbi.

As illustrated in the simple chart above, society encompasses schools, teachers, students, and industries, each trying to improve societal economic prosperity. In essence, each overlapped a segment of the societal sphere. Students and industries support each other in knowledge acquisition, research and economic rehabilitation and reliance. After graduation, students end up in one of the industries as staff. Teachers and industries support each other. Teachers need awareness of the latest development in the industries, whereas in industries, teachers are the trainers of (their future workforce). Schools are run by teachers, so both schools and teachers are indispensable to one another. Students' field of activities are schools, schools prepare the students for learning societal needs and aspirations.

Teachers' Roles in - Partnership with Industries

Technology teachers are catalysts that will facilitate the desired cooperation between schools and industries for economic rehabilitation and reliance of a nation. Their conversant with the needs of the students and industries will make such cooperation result oriented. Teachers should explore technology curriculum, pick on areas of interest to schools and industries, and proceed to plan the kind of partnership beneficial to students and the chosen industry. Technology curriculum may be silent on such partnership, but as we live in a high technology world derived by modern technology; there is need to accord recognition in the technology curriculum on the need to incorporate such linkage as part of the students' training programme for economic rehabilitation and reliance.

Concept of Technology Education

It is a broad term encompassing not only skill training in such traditional areas as wood work and metal work, but also the development of creative and innovative ideas in learners. While Elekwa (1983) has regarded technology as "a body of knowledge, skills and procedure for making, using or doing things in a specified and reproductive ways". Aula (1995:16) has summed up the essence of technology education

thus:

Now the major fabric of technology education involves training in the process of applying both science and technology education to practical problems right from the primary to the tertiary levels of education . . . it aims at (developing practical skills as well as the creative and **innovative** ability of students as it enhances and enhances and facilitate their problem solving and decision making skills (p. 20).

Thus, programmes in technology education are supposed to equip learners not only for today's world of work, but also for that of tomorrow. The mission of technology education here is the creation of Nigerians with technological knowledge, practical skills, attitudes and good work habits in the correct proportion and at the right time and place to enhance national productivity and promote economic rehabilitation and reliance. In a nutshell, technology education enhances industrial abilities, understanding, good judgment, self-expression and adaptation to varying environment to the extent that it promotes productivity.

Benefits of This Approach for Economic Rehabilitation and Reliance

For economic rehabilitation and reliance of any nation, there is the need to maintain a balance between theories as taught in the classroom and current industrial skills and practices. Advances in technology have always occasioned new technical vocabularies and current work patterns, and these could only be mastered through closer cooperation between the technology educational institutions and the industries; and therefore, some of these benefits will include amongst others:

1. It will bring increased access to knowledge, human resources and even financial assistance from other sectors in the community.
2. It will bring already skilled personnel to the industries and reduce the cost of retraining them through in - plant training.
3. Building a mutual understanding that creates support.
4. It will expand the capabilities of the institutions to deal with the challenges they meet in their lines of operations.
5. Providing opportunities for individuals and institutional organizations to perceive and appreciate other individuals and institutions/organisations point of view and approach to solving similar problems.

The Hindrances **Necessitating this Approach**

Many problems have continued to plague our technology education/industrial partnership, and therefore served as a roadblock to our quest for national economic rehabilitation and reliance. Some of these hindrances identified are stated below:

1. Low- level of industrialization: Most schools are situated in rural areas where there is almost zero industry. The population of students in cities could overwhelm the few available industries, this could create logistic problems.
2. Some schools will find it difficult to commit scarce resource towards promoting school science and industry partnership. Many of our secondary schools could not boast of adequate functional technology workshop. In this situation, school managers could view committing resources to school — industry working cooperation as least of their priority.
3. Teachers may not live up to expectation either due to absence of pre-requisite training or lack of interest and innovation. Planning and initiative of teachers would have to count more towards the success of school - industry partnership.
4. Lack of commitment on the part of the industries to provide relevant technological skills to the students, except their new employees whom they give in - plant training.
5. Exodus of technology teachers to industries and commercial organizations.

Recommendations

As a cross - section to economic rehabilitation and reliance approach, certain recommendations must prevail for the success of the approach. These will include amongst others:

- Orientation: Participating staff (trainees) from the two sectors must be adequately briefed and educated on the mission of the programme and their individual role in it.
- Constituting a central co-ordinating body.
- Good work relationship: The cooperating industries and the participating educational institutions must create a conducive working climate through mutual respect and loyalty to the curriculum and industrial structures.
- Commitment to the programme monitoring and supervision of both in - school and out - school learning activities.
- Feedback information: This can be used for evaluation of results in terms of strengths and weaknesses, success and failure of the graduates of the programmes.

Conclusion

Science and technology are the foundation of today's world economy. Therefore, for any country to continue experiencing and sustaining economic rehabilitation and reliance. It has to integrate its industries with school -technology, a partnership that will encourage positive attitude towards career in industries by future scientists and technologies. The training programme for technology teachers and students who will eventually work in today's changing technological field and contribute to our national economic rehabilitation and reliance must be as flexible and dynamic as technology itself. A system of technology education must be supplemented by a strong system of industrial training for economic rehabilitation and reliance.

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