

PROMOTING TECHNICAL RESEARCH FOR ECONOMIC REHABILITATION AND NATIONAL DEVELOPMENT

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Abstract

Technical research ensures domesticating technologies by making inappropriate technology to be appropriate. The paper reviewed the advantages that can be derived from research in technology such as effecting transfer of technology, boosting productivity, saving money on estacodes amongst others. Problems which militate against research and development and how technical research can be promoted, are mentioned in the paper.

Introduction

The pressure on man in attempt to satisfy his needs has placed all nations of the world towards the acquisition of scientific and technological advancement. The technological and scientific prowess of the industrialized west and the Asian tigers earned them the name and position "developed nations". Kulandiaswamy (1990) corroborated the above assertion when he stated that the creation, mastery and utilization of modern science and technology distinguished them as advanced nations. The scientific and technological transformation of the industrial nations was made possible by pulling in place a sound educational system and through practical application of research knowledge. Research has been the medium through which data for systematic and result-oriented development is obtained (Okeke, 1990). Knowing that research, like education, is a gateway to development, Nigeria is not relenting effort in attaining scientific and technological advancement as evidence shows in the following areas:

- i. Production of microchips and hardware for made-in-Nigeria computer.
- ii. Development and extraction of drugs from herbs for treatment of sickle cell anaemia and diabetes etc.

However, there is insignificant wholesale patronage of our research institutions by both governmental agencies and the organized private sector (OPS) in terms of financing as well as utilization and implementation of research findings. Be that as it may, this paper contemplates on promoting research in technology education for economic rehabilitation and survival.

The Concept of Research in Technology Education

According to Eke (1990) research is that arm of education, which engages in in-depth studies of issues with the aim of understanding, predicting and controlling events, Nwoke (1990) citing Tuckman (1978) defined research as a systematic attempt to provide answers to questions. Inference from this definition reveals that research is new knowledge driven.

Technical research, in technology education s a twin word "Research and Development and is often popularly used. To DeVore (1987), Research and Development (R & D) is that which involves the process of creating new knowledge and forms through a systematic search into relationships among technical means (i.e. tools, techniques materials etc) and applying this knowledge to meet human needs.

Technology education is concerned primarily with-acquisition of skills in individuals in order to engage in useful occupation. Uddin and Uwaifo (2003) assert that technology education is an applied science to the development of self and society. Therefore, technology education is desirable for the growth of the society scientifically and technologically. To this end, research is purposed lo evolve acceptable strategies that can be used to tackle economic rehabilitation and reliance in the following areas:

- i. Abject poverty.
- ii. Indebtedness and a host of others.

Benefit of Technological Research

Research generally assists in finding solution lo identified problems. Today, the nation is faced with multiple problems, which include hunger, shelter, poverty, energy etc. With research, areas of

technological ineptitude such as communication, energy, transportation, space, industries, and manufacturing can be identified and solved for qualitative improvement vis-a-vis expansion for the absorption of the teeming unemployed, By this, economic rehabilitation of the impoverished can be made possible.

Research in technology education is the best avenue for achieving the sing-song transfer of technology by Nigeria. Egbogah (2003:14) stated that "In the development of Malaysian oil and gas industry there has been effective transfer of technology and an expanding involvement by Malaysians in the industry. Me further added that the quest for technological advancement necessitated the construction of "PETRONAS TAXI" built to imitate the London cab, which is powered exclusively on compressed gas. This is made possible through positive policy towards foreign investment, huge investment in education, and the fostering and strengthening of institutions conducive to economic growth, Egbogah added. For the nation to be rehabilitated from a commodity-importing economy to an industrialized country, research in technology aimed at adapting technologies must be taken with all the seriousness it deserves. As a result, Nwoke (1990) advised that research should focus on production techniques-both within and international confines-by imitating, copying or mimicking. It is through copying that the nation stands to gain from both local and imported technologies. Advantage of developing appropriate technologies is that foreign exchange will be conserved. This is more so that money spent on estacodes studying research and development with the view to revamping (he economy will be minimized. Conscious and concerned R & D will redeem the nation from dependence on imported goods and services.

Technical research in medium and high technological activities will save (he nation of debts and going cap-in-hand for finance/materials aids. Ezirim (2003:30) was compelled in line with the above by stating that "we do not need to go to heaven lo get what we need. Rather, we can go to Japan, Britain and even Malaysia, and get the models with which we will develop. It should not be taking loans and aids from them as these enslaves us a ll the more and keep us perpetually in debt'¹. From the foregoing and the import of this paper, technical research-vis-a-vis the implementation of the results there from, is desirable to rehabilitate the nation from economic delusion.

Technical innovations made possible through research boost productivity of labour. Yearly (1990) citing Harbamas (1974) stated that scientific and technical inventions boost productivity of labour and that these activities are incorporated into economic progress. Hence, research innovations are indispensable if the economy is not to stagnate.

Technical research brings about technical changes, which has characterized the western economy as a whole (Ronayne, 1984). Buttressing Ronayne, Yearly added that the introduction of small internal combustion engines underlay the development of a whole generation of new products and new ways of doing things. Yearly asserted that, in addition to the products which employ these engines (i.e. Lorries, Pumps, aircraft etc), this innovation prompted other technical endeavours like the elaboration of road networks, construction of dwellings etc.

From the foregoing, technical research, which results in technological innovation and changes, is pivotal to economic growth and survival of countries that embrace it wholesale.

Problems Affecting Technical Research in Nigeria

Several factors militate against research activities in all areas of education including technical education, which has long being regarded as very expensive.

Principal among these problems is inadequate and uncertain funding (Shaib, Aliyu and Bakshi, 1997). Poor funding affects the management of research and development. Following this, Shaib et al added that "the private sector has not paid much attention to research and development, moreover, inventors in the country have not been encouraged by either government or private enterprises. Reasons for private sector's research inactivity can be seen from Yearly's (1988) assertion when he stated that in-house research and development facilities are not cheap and that the simple cost of establishing an industrial laboratory may be crippling for small firms. Yearly added again that given the centrality of technical innovation to economic survival, the inability of small firms to afford much research puts them at a disadvantage. Note that most firms in the country are small firms and the big, multinational firms research and develop their turnkey projects form donor/mother countries. This scenario cripples large-scale technical innovation, which according to Yearly is central to economic survival. By and large, since beneficial activities of research

institutions including the tertiary levels are hinged on funding, lack of it keeps research work at low ebb.

Dissemination of research findings to administrators in the public, private organizations in addition to the general public is at the heart of the problems facing technical research. Eke (1990) rhetorically asked, "who attends conferences, reads the journal articles, purchases the journals, participates in research? The pondering question by Eke delimits dissemination of research findings in technology. Besides, most technical journals in which technologically oriented research findings are published cannot be found within the bookshelf of bookshops in the markets.

Further on dissemination of research findings, Arua (1998) noted that schools do not subscribe to journals and teacher's attendance to conferences is low. To him, because schools' finances are poor, coupled with uncertain financing, there is erratic circulation of journals and low attendance of teachers at conferences where they would have learnt new knowledge and techniques.

Non-utilization of research findings is another attitudinal problem. Awowede (2002) related the sordid situation thus "when some scientists or research institutions have managed to come up with a break through with little or no financial support from both the government and private sector, their research efforts are frustrated or stagnated because of lack of patronage". In order to rehabilitate the economy by leap frogging into being among countries with the tag-name "developed economies", the country should give priority to scientific and technological research and its utilization. Utilization of research by the developed nations is at the backdrop that science and technology is the potent instrument of economic and national development. Nigeria must take a cue if she must not continue to be a dumping ground of technological products of other countries. Other problems affecting technical research include:

1. Lack of co-ordination of research institutions with respect to technology adoption and new materials (Udeala, 2003).
2. Lack of well-articulated long-term research plan (Shaib et al).
3. Poor infrastructural facilities (Shaib et al).
4. Non-patronage of made-in Nigeria goods.

Recommendations for Promoting Technical Research

Following the benefits that the nation stands to derive from technical research, the following recommendations are made:

- i. There should be adequate rehabilitation of the educational institutions through proper funding and provision of institutional/infrastructural facilities for the training of persons with research capabilities,
- ii. There should be budgetary allocations to research institutions rather than being subsumed in budget for education,
- iii. Technical research findings should be published also in multidisciplinary journals that can be found on sale in bookshops.
- iv. Administrators should attend conferences in technology education in order to appreciate the importance of research findings.
- v. There should be effective coordination of research institutions in the critical area of technology adoption and raw materials (Udeala, 2003).
- vi. There should be a deliberate policy measures for patronage of both research results and made-in-Nigeria goods.
- vii. Government should step-up machinery required for developing research results into marketable products and the machines to be used for this purpose. Awowede (2003) reported that developed countries make special arrangement in promoting the utilization of research findings.

Conclusion

In a nutshell, research in technology ensures domestication and development of both local products and materials. Therefore, for meaningful economic rehabilitation and survival of the nation, there must be a rehabilitation of the people's mind as recommended in this paper. What is needed is the motivational impetus in order to enable this country to reap from the economic long waves arising from research innovations.

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