INTEGRATING VISUAL ARTS AND SCIENCE IN TERTIARY INSTITUTIONS IN NIGERIA FOR A SUSTANABLE TECHNOLOGICAL DEVELOPMENT

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ABSTRACT

The need for visual arts to be integrated in developing a viable and sustainable technology in Nigeria cannot be overestimated. Tertiary institutions have a serious role to play in this regard. Though Nigeria aspire to develop technologically, the present approach where science alone is recognized, as the only agent for technological development seems faulty. This paper highlighted the value of both art and science in technological development and recommended that both visual art and science be utilized for the development of the nation's technology.

Keywords:Visual arts and science, tertiary institution, sustainable technology, development

INTRODUCTION

Obviously, the present state of technological growth in Nigeria appears very sluggish. In spite of the huge amount of money that has been spent on the development of science and technology, Nigeria's technological development remains a gross fall beyond expectation. The growth of any nation is strongly based upon its technological advancement and the sound education of the people. Many nations (Nigeria inclusive) have recognized the importance of technology in the transformation of their socio-economic, political and industrial structure. However, the most fundamental requirement for economic as well as technological growth of any nation is a function of her educational process.

The general impression that the nation's industrial and technological growth can only be determined by her advancement in science, thus according much priority to science over visual arts seems misleading, and has cuased the sluggish pace of Nigeria's technological growth. Perhaps it is for this reason that many art educators and scholars have suggested a technological education that not only emphasized science but also the creative as well as the aesthetic aspect of education (Lawal 1990 and Oloidi 1990). Lawal (1990) has observed that art, science and technology are closely related and must form the vital component for technological education. Mbahi (1999 and 2000) is of the view that proper attention be given to the development of creative or reflective thinking which enhances the development of creative skills and talents, which are qualities needed for technological breakthrough. The Nigerian Cultural Policy among its mandates sought to "promote creativity in the field of art, science and technology". It is for this reason that this paper proposes an all-inclusive and integrated approach in the development of a viable and sustainable technology driven education in tertiary institutions in Nigeria.

CONCEPT OF VISUAL ARTS AND TECHNOLOGY

To properly understand the issues addressed in this paper, it is pertinent to look at some definitions as advanced by some scholars in the field in relationship to arts and technology. Mbahi (1997) defined technology as the systematic knowledge of technical method of achieving practical

purposes. Nuhu (1999) perceived it as the procession of tools, machines, devices as well as gadgets. On the other hand Shepherd (1989) sees it as all manufactured materials, machines, devices and systems which help people to extend their capabilities in order to survive more easily and effectively. The definition of Buglluvello (1979) emphasizes on the relationship between visual arts and science. He defined technology as that art concerned with the application of the sciences. Todd (1987) sees it as the acquisition of a body of knowledge that is of practical value.

Technology can therefore be seen as the production of utilitarian objects for peoples day to day use to help them live more effectively and comfortably, in the society. The educational process must therefore be that which will enable people acquire technological skills for national development. Umar (2000) observes that industrial designers or artist have evolved ways in participating in producing utilitarian products such as cars, plastic ware, furniture, etc. This view was supported by Adedokun and Ikponmwosa (1997) who observed that models of the technological industries are done by artists. It is therefore expected that if visual arts is utilized appropriately in technology, it will be able to facilitate technological development in Nigeria. What is left therefore is to develop a well rounded, all embracing and all-inclusive educational programme, which integrates visual arts and science in the development of technology at all, levels of education.

DESIGN, CREATIVITY AND TECHNOLOGICAL INVENTIONS

Acoording to Nuhu (1999), design is an arrangement, scheme or composition. He further sees it as a plan for arranging separate materials into a unified pattern. On the hand, Ogumor (1993) perceives it as the art of arranging or organizing lines, shapes, motifs, symbols and images for the purpose of communicating an idea. Umar (1999) also sees it as planned and orderly arrangements or the organization of a part into a whole.

Explaining further, Shepard (1989) is of the view that designing is the process of using or adapting technology to provide the things people need or want, for it involves identifying things that are needed, developing possible ideas and making them happen. He believes that a good design

occurs when the technology, which has been created, is successful in improving the quality of lives of human beings in the society. To be able to do this however, it is pertinent to acquire some design skills, which are possible through the development of visual arts skills.

To enable an effective design requires a good amount of creativity. According to Odesanmi (2000), creativity and the visual arts are two inseparable bedmates whose product of their romance is inventions, innovations and breakthrough. He strongly believes that the Nigerian educational programme cannot afford to have a lukewarm attitude towards the visually creative, gifted and talented. Since these are the foundation of technological development. He stressed that no country should take her educational system with a light hand especially where it affects creativity.

Against this backdrop, Lowenfield and Brittain (1975) defined creativity as the ability to explore and investigate. The results of such investigation often manifest itself in the independent and original approach, which is seen in any product. Nuhu (1999) defines creativity as people's behaviour, which occurs when they invent new pattern, or ideas as well as the investigation of a new or borrowed factor in an already established tradition. For Sawa(2000), creativity is higher order of thinking. He equally sees it as the capacity to originate, invent, reflect, analyse and synthesize. On the other hand, Olorunkoba (1991) sees it as a process by which something new, be it an object in a form- arrangement, is produced.

It therefore implies that creativity is a tool employed to create, analyze and synthesize new and original designs and products. It is a valuable tool for technological breakthrough inventions as well as innovation. Odesanmi(2000) strongly agrees that creativity is one of the tendencies that will give way to invention subsequently, resulting in technological development or advancement. He also believes that artists are creative people and that visual art encourages creativity and invention from day to day. Therefore, it is not an exaggeration saying that the difference in the creative ability of professional teachers seem to lie in the hands of teachers with visual arts training because of their creative ability.

THE ROLE OF VISUAL ART IN TECHNOLOGICAL DEVELOPMENT IN NIGERIA

Though visual art is considered to be very valuable in developing the creative potentials needed for technological invention and breakthrough, it practical role seem to be absent in developing technology in Nigeria. Obviously the art and design aspect of technology, which seem to have been completely left out of technological development in Nigeria, seem to be the reason for the country's lack of full technological actualization today.

According to Mbahi (2000), science is the "knowing" and art, the "creative mind" involved in the formation or production of objects, while technology is the skillful hand involved in "doing" the craft. That is to say the artist or the industrial designer creates the aesthetic quality of an industrial product. It is therefore imperative to recognize in Nigeria that the desire to make things beautiful must be as the desire to make them useful (Uzoagba 1982) if technology is to be completely developed in Nigeria.

The propaganda by the ministry of information and culture that Nigerians should be patriotic and buy made in Nigeria goods is meaningless. We must examine the reason why Nigeria prefer "foreign made" products and proffer a lasting solution to the problem. The issue is not that of patriotism. It may simply be because of beauty (art or design), procedural know-how (science) as well as skillful execution or craft (technology) are not highly considered in industrial production in Nigeria. It may be argued that in industrial production, the senses must be trained to appreciate the quality in material, the visual proportion in measurement and the tactile relationship of area in mass. Equally important, is the aesthetic quality of the production, and such relationship seems lacking in "made-in-Nigerian" products (Mbahi 1999).

As observed by Sawa (2000), of all the disciplines that exist visual arts is the only one that has helped in shaping the human personality, even before the arrival of science. His reference to arts here was not as a product of leisure alone but as a valuable agent for technological development. Undoubtedly, visual arts have contributed significantly to technological

development today. Indeed, all objects of daily use show a recognizable style in art, and this can be seen in the design element of modern architecture, television, fridge, chairs, clocks, etc. Many manufacturers have realized that though technology may enable the industries to produce items fast, it is however the artist that captures the market. (Mbahi 1999 and 2000). It goes to show that a well-balanced education for technological development must include visual arts in Nigeria.

INTEGRATING VISUAL ARTS, SCIENCE AND TECHNOLOGY IN TETERIARY INSTITUTIONS IN NIGERIA

The utilization of the various aspects and resources in visual arts, and adapting them to the production of products, like automobiles, electrical appliances, electronic gadgets, furniture etc., has become highly imperative in Nigeria. If Nigeria hopes to make labour more productive and products more competitive in the international market, there is need to adapt our artistic creativity and innovation to technology. Technology should not only be seen as acquiring the existing technical knowledge but also in developing the ability to assess, choose and adapt such knowledge to local situation. Although scientific understanding and technological skills and competence are essential to the transformation of the production process, the creative process is equally essential.

The fact that science, art and technology are closely related and must form the vital component for technological development, is an under statement. There is need therefore to improve the practical component of the Nigerian educational curriculum at all level of education, by integrating visual arts, science and technology. Lawal (1990), observes that the fact that visual art is identified with the creative imagination and the non-utilitarian or something which is meant for aesthetic decoration alone while science and technology is associated with scientific and utilitarian products of human endeavour has greatly obscured the generic relationship between visual art and technology. If technology is to be fully achieved in Nigeria, there is need to establish this relationship in the educational system so that visual arts, science and technology can be taught as an integrated programme in Nigerian schools.

CONCLUSION AND RECOMMENDATIONS

One may state that if the objective of the Nigerian educational philosophy, which is geared towards technology and economic development, is to be well articulated, then technology as envisioned in this paper should integrate science and visual arts. At Present, in the Nigerian educational realities, the focus is on the development of each of the Blooms of taxonomy of education, (the cognitive, the affective and the psychomotor domain) as separate and distinct entities, without fully taking into cognisance the fact that all the domains of education are interrelated and inter-dependent. The understanding of this inter-dependency is essential in integrating visual art, science and technology for a sustainable technological development in Nigeria. In the light of the above, the study recommends that technological programmes should be developed to include aspects of visual arts; there is need for visual arts to be taught at all levels of education. The present situation where visual art terminates at the junior secondary school level of education is highly unsatisfactory; teachers of technology programmes that have knowledge in visual arts should be employed to develop visual literacy as well as creative skills among students. Finally, there is need for serious enlightenment champaign about the vital role of visual art in the development of technology in Nigeria.

REFERENCES

Akolo, J. B. (1992). Challenges of Creativity in Developing Countries. Science and Technology Education for National Development. Jos: Zimek Communications.

Adedokun, B. A and Ikponmwosa O.O. (1997). Art an indispensable tool in Nation Building. *Journal of Vocational* Education. Vol.1, 23

Buglluvello, D. (1979). *The history and philosophy of technology*. Illinois. The University of Illinois Press.

Federal Republic of Nigeria (1988). *The Nigerian Cultural Policy.* Federal Ministry of Information. Lagos: Printing Division.

Lawal, B. (1990). *Visual arts technology and the 21st century; Strategies and Prospects of Nigeria.* Creative Dialogue. Society of Nigerian at 25 Lagos Pola Tabson.

Lowenfeld, V. and Brittain, L. (1975). *Creative and Mental Growth.* New York: Macmillan Publishing Company Inc.

Mbahi, A. A. (1997). *The State of Visual arts Education in Nigeria.* Maiduguri: Faculty of Visual arts, University of Maiduguri.

Mbahi, A. A. (1999). *The History of Classroom Visual Arts in Nigeria.* Maiduguri: Kingswell Publishers.

Mbahi, A. A. (2000). Visual Arts Science and Technology. *Research Journal of Science* 1 and 2. Faculty of Science. Maiduguri: University of Maiduguri. 17

Mbahi, A. A. (2000). *Arts Teacher.* Maiduguri: Kingswell Publishers Limited.

Nuhu, A. Y. (1999). Visual arts and Creative Education. Unpublished Postgraduate Seminar Paper. Industrial Visual arts Department. Ahmadu Bello University Zaria.

Oloidi, O. (1990). *Visual arts Technology and the 21st Century: The Nigerian Situation.* Creative Dialogue Society of Nigerian Visual artist. Lagos: Pola Tabson.

Odesanmi, J. B. (2000). *The Role of Fine and Applied Visual arts in Creativity for Technological and National Development.* In *science and technology for national development*. Jos: Zimek Communications.

Ogunranti, A. Ihogbe, J. H. Babatunde, S. O. Akanbi, K. I. and Egwuim, J. C. (1981). *Education Technology*. Ibadan: Heinemann Publishers Limited.

Olorunkoba, B. K. (1991). *Art for Senior Secondary Schools.* Zaria: Ahmadu Ballo University press.

Shephard, T. A. (1989). Introducing *Design in Technology Across the Curriculum.* Leckhamton: Stanley Thonres Publishers Ltd.

Sawa, B. A. (2000). *Motivational Issues in the Development of Creativity in Science and Technology Education.* Jos: Zimek Communications.

Uzoagba, I. N. (1982). *Understanding Visual arts in General Education.* Onitsha: Africana Publishers Limited.

Umar, Z. A.(1999). The Role of Industrial Art In National Development. *Journal of Vocational Education, 2 Pankshin.*

Umar, Z. A. (2000). Visual Art Education: A Vehicle for National and Technological Development. Unpublished seminar paper.