VISION AND MISSION OF METALWORK TECHNOLOGY EDUCATION IN THE 21ST CENTURY

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Abstract

This paper attempted to look globally at the vision and mission of Metalwork Technology Education in the 21st century. The meaning of vision and mission were discussed. The paper also defined the concepts Metalwork, Technology, and Metalwork Technology as a whole. Strategies for making the vision and mission realizable and mission attainable were highlighted.

Introduction

It is a reality that an unexamined life is not worth living. This is applicable to individual human beings, corporate bodies, organizations as well as systems. This paper therefore takes a look at the mission and vision of Metalwork Technology Education vis-a-vis its. aims and objectives. More specifically, it examined the following:

(i) How far the aims and objectives of Metalwork Technology Education in Nigeria are being achieved, (ii) The factors that thwart or propel policy thrust in Metalwork Technology Education.

Obani (1998) opined that the education system is one system that is in constant need of change, evaluation and re-evaluation to ascertain that both its products and practice match and mediate the ever changing social, economic, technological and political needs of the society, unless there is systematic assessment and review of the aims and objectives of a nation's education system; its products will remain outdated as soon as they are produced.

Vision and Mission

Hornby (2001) defined vision as the ability to see or imagining looking ahead. Obani (1998) added that vision is a mental creation, a mental and intellectual perception of a desired end. For the purpose of this paper, vision implies looking ahead or dreaming of what the future of metalwork technology education in Nigeria will be in the 21st century.

Mission according to. Yoloye (1998) is the special duty which someone is directed to perform. In the same vein, mission according to Nwaokolo (1998) is the empirical estimation of the practical accomplishment of the vision. For the purpose of this paper, mission is the actualization of vision, which are sometimes ambitious dreams.

Metalwork Technology

Metalwork according to Hornby (2001) is the activity of making objects out of metal in an artistic and skillful way. Technology is the study, mastery and utilization of the manufacturing and industrial methods (Abdullahi in Aluwong, 2004). Technology is the systematic application of the knowledge of science to practical tasks in industry, the know-how of doing things. Metalwork technology according to Aluwong (2004) is the application of scientific knowledge in the activity of making objects out of metal in an artistic and skillful way. In other words, it is the totality of all the processes involved in the production of metal articles.

Vision of Metalwork Technology Education

Metalwork technology education is a component of technical education. Therefore, their mission and vision are the same. It is an indisputable fact that the world is at the level of technology information explosion and micro-electronic revolution, which will generate new ways of life and working which perhaps, will create new demands on the education system. Before the end of 21sl century, there will be increase in feminine gender in the field of metal work technology occupation previously masculine gender stereotyped. As a result, new demand for skilled manpower-needs will be created in metalwork technology education. The yoke of cultural and family tradition that restricts women participation in metalwork technology education will be broken before the end of the 21?t century. Paper qualification emphasis in metalwork technology education and other related trades will be less and there will increased emphasis on practical knowledge and skills. The employment requirement of academic staff in our institutions of learning will be based on practical and applied skills before the end of (he 2 Is' century. The minimum requirement for teaching metalwork

technology in our tertiary institutions and universities will be upgraded. The future will generate changes in the curriculum offerings of metalwork technology education. There will be training and re-training programme for metalwork technology workers to improve their skills in the various occupations in which trainees are seeking employment. There will be need for multiple kills for metalworkers in trades like welding, machining work, foundry work, pattern making, moulding and a host of others to be able to keep abreast with the fast developing of technology. Due to the fast developing technology, training programmes, courses, curricula and teaching methods will become obsolete at a fast rate. Metalwork technology teachers will be marked by versatility and flexibility. Teachers will be more amenable to innovations due to emergence of new technologies. Teachers will be seekers of new knowledge and facilitators of learning than the present day teachers who are very conservative and reluctant to change. There will be increase in universities, colleges of education, technical colleges and non-technical colleges offering metalwork technology courses at both postgraduate, undergraduate, Nigerian Certificate in Education (NCE) and secondary school levels. There will be increase in demand of metal products before the end of 2I$^{S|}$ century. The fast movement of technological change will render the teaching and training facilities of metalwork obsolete. Computer assisted design (CAD) and computer-assisted manufacture (CAM) will be introduced in technical institutions of learning at all levels. The evolution of different types of equipment and new working material are possibilities in the 21$^{s'}$ century. There will be decrease in the importation of metal products and increase in the production of metal products in Nigeria.

Mission of Metalwork Technology Education

The mission of technology education according to Abdullahi (1985) 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 national development. But the mission of metalwork technology education in this century is to produce self-reliant metalwork technology with entrepreneurial initiatives and high level of knowledge of practical skills in different trades of metalwork.

S elf-Reliance

Self-reliance according to Agbede (1998) is the ability to be independent of anybody. It is the competence of earning a viable livelihood. In other words, it is a situation where an individual does not rely on external factors such as government, companies or any organisation as his employer. It is no longer news that people are advised to learn a skill, and stop depending on government paid-jobs since paid-jobs are no longer available. Fabian, in Aluwong, (2004) advised graduates to start thinking about how to create their own jobs because public sector jobs were shrinking. Being without a source of livelihood has a devastating effect on job seekers and their families. Being without a job according to Akanbi (1987) can cause loss of self-respect, strained family relations, domestic violence,-depression, alcohol abuse and even suicide are well documented reactions tojob loss. Fortunately, for metalwork technology education graduates, they have enough trades that can make them become self-reliant if they are well-balanced in practical skills. A metalwork technology graduate can become self-reliant by establishing a general welding workshop for assembling metal fabricated parts of metal products. One can equally become self-reliant by establishing extra mural classes for metalwork theory to students in technical education field. One can become self-reliant by establishing a foundry where melting of metals is done and pouring them into a prepared mould cavity when producing iron pots, spoons, engine blocks of a car.

Entrepreneurship

Enlrepreneurship according to Aluwong (2004) is all about self-reliance, which involves identification of a market and mobilizing necessary resources to serve that market through a business outfit. In the same vein, NDE in Aliyu, (1997) defined Entrepreneurship as the art which involves recognizing a business opportunity, mobilizing resources and persisting to exploit that opportunity. In the 21" century metalwork technology teacher should be equipped not only with technical skills but also with entrepreneurial skills such that on graduation he can establish a business of his own. The infusion of entrepreneurial education in the NCE curriculum is a reaction to the escalating incidence of graduate unemployment, llic goal of entrepreneurial skills is to orient students towards self-reliance if wage earning jobs become inaccessible (Akale, 2004). It is based on the unavailability of government paid-jobs lhat metal work education students at NCE level now offer entrepreneurship as a course, which is compulsory. This is done to avoid over dependence on paid jobs. The graduates are groomed in such a way that they can establish a business on their own, then use the knowledge of entrepreneurship to run or manage that business successfully. The training of entrepreneurship should be in addition to the usual skills training of metalwork technology education. Without adequate metalwork technology skills, one is not likely to succeed even when encouraged

to open a business workshop. It is therefore, important that the introduction of entrepreneurship education does not disadvantage the manipulative skills. Perhaps it is important to stress here that in a period of mass unemployment and declining economic fortunes, only the best can survive. Metalwork technologist armed with entrepreneurial skills can run a welding workshop, thread cutting workshop, drilling workshop, foundry shop, pattern making shop and a host of others.

Trade

Trade according to McCarthy, and Repp (1989) is a job or work, which generally requires from two to five years to learn. It requires both knowledge and skill. A trade is usually learned through a combination of shop instruction, classroom instruction and on-the-job training. Skilled trade under metalwork occupations includes:

(i) Welder: The welder joins metal parts by melting the parts together with the use of the . oxyacetylene welding process or electric-arc welding process, (ii) Machinist. He repairs and constructs machine tools. The machinist does fitting, set up and run any machine, and is able to use any tool in the shop.

(iii) Shcct Metalworker: He makes and repairs such things as furnace pipes, furnaces, signs, metal roofs, metal furniture and lockers.

Training of Metalwork Technologists

A major means for carrying out training of metalwork technologists in our institutions of. learning is the curriculum. The curriculum consists of the list of courses and activities for the trainees and general objectives of the courses. Reflecting on the issue of the curriculum is in fact enunciated in the scripture that whatever a man sows he wili reap. Training of metalwork technologists starts from primary school level where pupils are allowed during craft lessons to construct anything of choice and interest. Some pupils construct metal toys using discarded tin cans, others will construct using cornstalks, clay, etc. At the junior secondary school level (JSS), students all offer introductory technology, which comprises of metalwork, woodwork, automechanics electricity/electronics, technical drawing, mathematics and integrated science subjects. At the senior secondary school level (SSS), those who opted for metalwork as their major offer courses like: general metalwork, technical drawing, physics, mathematics, chemistry, English and social studies. Students that are opportuned to attain to full-fledged technical colleges are to undergo industrial attachment for a period of six to eight weeks. At the Nigeria Certificate in Education level (NCE), metalwork technology students offer .general courses with those in other departments like automobile technology, woodwork technology, electricity/electronics technology and building technology. They offer courses like: introduction to metalwork, introduction to woodwork, introduction to electricity/electronics, introduction to building .construction, introduction to automobile technology, technical drawing, foundry and forging, entrepreneurship in vocational and technical education, sheet metal work, welding and fabrication, machine shop practice, graphics, physics, chemistry, algebra, calculus, special methodology, students industrial work experience scheme (SIWBS) teaching practice and practical project. At university level, courses like machine shop practice, foundry and pattern making, machine drawing, welding technology maintenance of equipment, metal forming and fabrication, shop organisation and management, general education courses, students industrial work experience scheme (SIWES), leaching and research project. All these courses offered at different levels are to come out with

experienced and qualified metalwork technologists. Technologists who acquired such training with industrial attachment experience can apply the knowledge of entrepreneurship to become self-reliant or self-employed. If the training institutions are well equipped with qualified teachers and adequate training facilities, (here is no doubt that the metalwork technologists that are trained in our institutions of learning will be able to change the Nigerian situation before the end of $21^{S|}$ century by producing quality and attractive metalwork products like iron-beds, room dividers, iron boxes, chairs, tables, enough to stop the importation of metal products from developed countries.

Strategies for Making the Visions Realizable and Missions Attainable

Since the position of this paper is the production of metalwork technologists with entrepreneurial initiatives and high level of knowledge of practical skills in different trades of metalwork. This can be realized and attained through the following:

(i) Teachers to (rain technologists either in universities or colleges of education (technical) should have their laboratories well equipped for effective up-dating of their scientific and technological knowledge, (ii) Both local, state and. federal government should join hands together in giving reasonable

amount of money as- loan (o metalwork technologists with skills so that they can use it to establish a business on their own. (iii)Degree programmes should be mounted in colleges of education offering metalwork technology education. This is because the equipment in some of the universities presently running the programme are not up to standard of those that are in some of the colleges of education (technical), (iv)Entrepreneurship training should start from primary school to university level.

(v) Nigerian government and individuals should encourage its local technology by purchasing the local metal products and stopping the importation of same products from developed countries.

(vi)There should be proper funding of institutions offering metalwork technology because metals are known to be cosily, and it is not every institution that is not well funded by the government can afford to buy materials for students' practical training.

Conclusion

This paper skimmed the surface of the paramount issues of mission and vision of metalwork technology education in the 21$^{s'}$ century. The major point of concern was on the production of technologists in metalwork technology education with high level of practical skill and entrepreneurial initiative in different trades.

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