

1612 - CONFERENCE PROCEEDINGS
NATIONAL - (16)

Technology Education As An Impetus For Sustainable National Economic Empowerment Development Strategy (NEEDS).

NIGERIAN ASSOCIATION OF TEACHERS OF TECHNOLOGY



17th Annual Conference

TECHNOLOGY EDUCATION

as an

IMPETUS

for

SUSTAINABLE NATIONAL ECONOMIC EMPOWERMENT DEVELOPMENT STRATEGY (NEEDS)

Proceedings of the

17th Annual National Conference Abuja 2004

Held at the

Federal Capital Territory College of Education
Zuba Abuja

from

11th-16th October 2004

Editors

G. N. Nneji.,
M.A. Ogunyemi.,
F. O. N. Onyeukwu.,
M. Ukponson.,
S. O. Agbato.,
E. A. Nnenji

(NATT)

NIGERIAN ASSOCIATION OF TEACHERS OF TECHNOLOGY

17th Annual National Conference Abuja 2004

TABLE OF CONTENTS

Preface	x
Presidential Address	1-3
Key Note Address The place of technology education in achieving the goals of national economic empowerment development strategy (NEEDS) Dr. G. Taylor	4-8
SECTION A	9
Training of skilled metal workers for national economic empowerment development strategy: A need for curriculum change Onwuchekwa, A.K	10-15
Industrial technology education: A new curriculum thrust for attainment of national economic empowerment development strategy (NEEDS) for post secondary education in Nigeria K.A. Amuludun	16-20
Enriching the teaching of automobile technology at the technical college level for the attainment of national economic empowerment development strategy (NEEDS) Adebayo, S.A	21-26
Vocational education as a tool for achieving national economic empowerment development strategy (NEEDS) Oke Sunday	27-30
Re-structuring of automobile technology curriculum towards attainment of NEEDS objective in the colleges of education (technical) in Nigeria Adeogun, K.B	31-36
Productive technology education curriculum towards attainment of national economic development strategy Adeye, T.T and Yusuf A.O	37-39
Relevance of technology education curriculum towards attainment of national economic development Ajibade, T.O, Adekunle, O.A, Olabiyi, O.S	40-44
Mechanism for enhancing technology education: A necessity for sustenance of manpower development	

Improving infrastructural facilities in technological institutions: A strategy for the attainment of national economic empowerment development.

Adelbesin J. B

102-107

Adequate provision of infrastructural material in teaching metal work technology: Implication for the attainment of NEEDS objectives

Folorunso, O.A

108-113

Maintenance of workshop infrastructure in technical education and its implications in tertiary institutions

Alabi O.A (Mrs)

114-117 ✓

Analysis of equipment and tools for effective skill acquisition in schools technical education: A case study of school of technical education Federal college of education (tech) Akoka

Olusanya, S.O

118-125

Provision of infrastructure of equipment and tools for the attainment of needs: A case study of technical education: Federal college of education (Tech) Akoka

Aleburu, J.O

126-133

The role of functional facilities in the acquisition of skill through Polytechnic education

Christopher Udoh

134-137

Human and physical resources management in technology education for the attainment of NEEDS: Problems and suggested solutions

Olateju, A.S.O

138-143

Infrastructures for effective teaching of introductory technology in Nigerian schools: How adequate?

Lagos State as a case study

M.A.A.Ogunyemi

144-148

Infrastructural need for effective woodwork technology education in Nigeria

Onuoha Patience

149-153

Provision of adequate workshop tools and equipment for raining in technology education institutions towards the realisation of the goals of national economic empowerment development strategy (NEEDS)

Rufai Audu

154-158

✓ Improving the performance of metal work technology students towards attainment of NEEDS objectives

✓ B. N. Atsumbe and I. Y. Umar.

159-164 ✓

SECTION C

165

Government policies on technology education and attainment of NEEDS objectives

Wodi, S. W. and Dokubo, A

166-169

The implication of technology education in national growth

Olabiyi, O. S, Ologhan, J. A & Okewo, S.O

170-174

Vocational education for women: a necessary impetus for sustainable national economic empowerment

Ologhan, J.A. Okewo, S.O. & Olabiyi, O.S.

175-181

Strategies for improving technology education for sustainable economic empowerment in nigeria

Adekunle, A.O., Olabiyi, O.S. & Okewo, S. O.

182-186

Government policy on micro-credit loan among Rivers State graduates for national economic empowerment strategy

Rev. S. T. Puyate

187-192

Formulation and implementation of skill acquisition oriented policy on technology education for attainment of (NEEDS) objectives

Engr. Onyeukwu, F.O.N. & Mr. Abassah Miller

193-196

Vocational education as a tool for achieving national economic empowerment development strategy (NEEDS)

Oke Sunday

197-200

Technology education: enhancing employment growth for the Attainment of (NEEDS)

Dawodu, R. A. & O.O. Macgregor-Odusanya

201-204

NEEDS: a mechanism towards more efficient and effective vocational and technical education

Dahunsi, F.O., Oluwa M.O., Adenuga B. A.

205-208

SECTION D

209

Financing technology education for the (needs)

Eke Felix Chima

210-212

Problems and prospects of funding and financing technology education for the attainment of needs. Tayo Abokede,	213-220
Adequate funding of technology education: a panacea for the attainment of national economic empowerment development strategy (NEEDS) A. M. Idris	221-224 ✓
Funding technology education for sustainable national economic empowerment and development: implication for counseling Dr. I.N. Mogbo	225-228 ✓
Financing technology education for the attainment of national economic empowerment development strategy (NEEDS) Yalams, S.M. (Ph.D) & Hassan N. Mohammed	229-232 ✓
Financing home economics education for the attainment of national economic development empowerment development strategy (NEEDS) Ifedayo A. M. (Mrs.)	233-237
SECTION E	238
✓ An evaluation of the effects of computer assisted instruction on the performance of technical college students Adedokun, J.A	239-243
examination of gravel as one of the constituents of concrete in building construction Ariba Olusegun	244-247
Automobile technology education: Problems and solutions towards attainment of needs objectives in Nigeria Samuel J. Ukit	248-251
Motivation strategies in technical manpower Training Dr. G. I. Ken. Akininwor	252-256
Education and training in the informal sector: an evaluation Dr (Mrs) Adaeze Chike-Okoli	257-261
Assessment of primary school vocational programme for attainment of needs objective Dr. A.S. Ma'aji	262-266

IMPROVING TECHNOLOGY OBJECTIVES THE PERFORMANCE OF METAL STUDENTS TOWARDS ATTAINMENT OF 'NEEDS' WORK

By

B.N. ATSUMBE AND I.Y. UMAR

Industrial And Technology Education Department
Federal University Of Technology, Minna

Abstract

This study was designed to identify strategies for improving the performance of metal work technology students of Technical Colleges towards attainment of Government Reform agenda (NEEDS) objectives. Three research questions were formulated to guide the study. A 28 items questionnaire was developed and used to collect Data from respondents consisting of 11 teachers and 82 students of Technical Colleges in Niger State the data was analyzed using frequency count and mean. The study revealed that both the teachers and the students shared similar views towards the majority of the items. It was therefore recommended among others that a well equipped work shop with tools, materials and machine tools should be provided as a result of collaboration between government and private enterprises, utilization of current information through the use of internet should be encouraged by the teachers and that use of models and instructional aids in teaching of metal work should be emphasized by the teachers.

Introduction

Nigeria society expects its education system to meet its aspiration to shape its future, and provide solution to some of its social, political and economical issues. Under National Economic Empowerment and Development Strategy (NEEDS) education is considered a key instrument to empower the children to take charge of their lives in the future. As stated in the NEEDS' blue print (2004) the strategy will aim at the empowerment of the citizenry to acquire skills and knowledge that would prepare them for the world of work.

Today, Technical Institutions have been recognized as good base for training skilled manpower that can be effective in this country. Olaitan (1988) defined technical education as an effort to co-ordinate students and property to receive learning experience at right time, using proper material and equipment needed to make that experience worthwhile.

The introduction of metal work is to encourage the acquisition of practical skills in students. It is to encourage them to use their hands in making, repairing and assembling things. Before now metalworking is believed to be for the dropouts or low intelligent students and low income parents. This tends to drive people away from this trade. Metal work Technology is very important in technological development of Nigeria. According to Encarta Encyclopedia (2003) they are artistic work made of metal from precious to base fashioned by either casting, hammering or joining or combination of these techniques.

Metal work Technology trades, which are taught in technical college level, include foundry work, welding, motor bodybuilding, fabrication and mechanical craft practice fitting and machining. It is expected that graduate of technical colleges in metal work after completing the programme will be useful to themselves and the society at large. The objective set to be achieved by metal work technology students include to appreciate uses of simple tools, developed a creative behaviour, to have self realization and initiative; have the basic workshop skills and knowledge; be able to produce and weld simple tools. Must have manipulative skill, be able to identify faults in machines and be able to repair them.

Isah (2003) remarked that building of well-equipped workshops are of utmost importance in most of the technical colleges and vocational centers in Nigeria. Despite moves by government to achieve the aims of being self reliant, the performance of students is on decline in technical colleges in Niger state. Public Complains of their incompetent in work and industries where employed. This there fore called for immediate action in order to attain NEEDS' objectives.

Research Questions

In order to achieve the objectives of this study the following research questions were postulated,

1. To what extent does the availability of tools and equipment affect the teaching and learning of metal work technology?
2. What are the factors that will facilitate good performance of students in metal work technology?
3. What are the strategies for improving the teaching of metal work technology?

Methodology

The questionnaire was the sole instrument used for collection of data. Itemized questions were used for answering the research questions. The population for the study comprised of all the metal work teachers and students of technical colleges. A samples of 12-teachers and 82-students that completed and returned the questionnaire were used for the study.

The mean was used to answer the research questions to determine the level of Agree or disagree to each of the questionnaire item, four point scale of strongly agree, Agree, Disagree and strongly disagree was assigned. The cut off point was fixed at 2.50. Therefore any item that attracted up to 2.50 and above was considered Agree, while any mean below 2.50 was regarded disagreed.

Research Question 1

To what extent does the availability of tools and equipment affect the teaching and learning of metal work technology?

Table 1 shows the responses of both teachers and students on how the availability of tools and equipment affect teaching and learning of metal work technology.

Table 1: Responses of Teachers and Students on the Availability of Tools and Equipment.

S/No	ITEMS	N ₁ = 12		N ₂ = 82		REMARKS
		X ₁	X ₂	X ₁	X ₂	
1	The schools has adequate materials and equipment for practical	2.15	2.30	2.23		Disagree
2	Hand tools like Hacksaw, File etc. Are available for use in the school workshop	2.56	2.54	2.55		Agree
3	Several machine tools such as lathe, shape, etc. are readily available for use	2.11	1.99	2.05		Disagree

4	Materials provided are adequate for effective teaching metal work.	2.20	2.10	2.15	Disagree
5	The utilization of the facilities provided are encouraged.	3.20	1.40	2.30	Disagree
6	Several operations are usually performed using available tools equipment.	2.22	1.68	1.95	Disagree
7	Some tools are usually improvised as a result of non availability	3.15	2.58	2.87	Agree
8	Adequate maintenance is provided for tools and equipment	3.20	3.50	3.35	Agree

Research Question 2

What are the factors that will facilitate good performance of students in metal work?

Table 2 revealed the responses of both teachers and students on factors that will facilitate good performance of students in metal work.

Table 2: Responses of Teachers and Students on Factors that will facilitate good Performance of students in Metal Work Technology.

S/No	ITEMS	$N_1 = 12$		$N_2 = 82$	REMARKS
		X_1	X_2	X_t	
9	Rewarding students with outstanding performance in metal work with Text books	3.61	3.40	3.51	Agree
10	Equipped Library for Staff and Students	2.92	3.46	3.19	Agree
11	Use of models and instructional aids in teaching of metal work.	3.06	2.88	2.97	Agree
12	Availability of professionally qualified teachers of metal work technology	3.54	3.25	3.40	Agree
13	Encouraging teachers to embark on further training.	2.55	3.02	2.79	Agree
14	Having teachers that are dedicated to duties.	2.63	2.41	2.52	Agree
15	Regular workshop practice on all topics taught.	3.06	3.62	3.34	Agree
16	Enlisting students of metal work technology into appropriate industrial work experience.	3.25	2.15	2.70	Agree
17	Paying stipends to metal work students.	2.32	3.82	3.07	Agree
18	Provision of a well equipped workshop with tools, materials and machine tools.	3.70	3.50	3.60	Agree

Research Question 3

What are the strategies for improving the teaching of metal work technology?

Table 3 shows the responses of both teachers and students on the strategies for improving the teaching of metal work technology.

Table 3: Responses of Teachers and Students Strategies for Improving the Teaching of Metal Work Technology.

S/No	ITEMS	N ₁ = 12		N ₂ = 82		REMARK
		X ₁	X ₂	X ₁	X ₂	
19	Provisions of classroom facilities and tools for teaching metal work.	2.84	2.66	2.75		Agree
20	Allocation of funds for maintenance of tools, equipment and machines	3.51	2.15	2.83		Agree
21	Provision of machine tools such as Lathe, shape, Grinding, Drilling, milling etc.	2.64	2.70	2.67		Agree
22	Regular seminars/workshops for the teachers of metal work technology	2.52	2.68	2.60		Agree
23	Regular payment of teacher's salary and other allowances.	3.66	3.04	3.35		Agree
24	Utilizing current information through the use of internet.	3.82	3.61	3.72		Agree
25	Purchasing relevant textbooks tools equipment, machines and materials.	2.89	3.02	2.96		Agree
26	Constant supervision of teachers and students practical classes.	2.15	3.12	2.79		Agree
27	The use of improvised instructional aids should be encouraged.	3.42	3.64	3.53		Agree
28	The use of small scale industrial resource persons such as road side welders and panel beaters	3.70	2.60	3.15		Agree

Key: N₁ = Number of teachers, N₂ = Number of students.

Discussion

Analysis on Table 1 shows that respondents agreed with 3 items and disagreed with 5 items. This reveals that hand tools are available for use in the school workshop some tools are usually improvised as result of non-availability and that adequate maintenance is provided for tools and equipment, but materials provided are inadequate for effective teaching of metal work, several machine tools are not readily available. It is pertinent to note here that materials/tools needed for skill development in metal work are not available. This according to Ejiogwu (1994) result because the resources at government's disposal is fast dwindling, and which have to be rationed out to competing demands, beckoning for urgent attention. Hence, government is never in position to satisfy the demands for all sectors including education.

A close look at table 2, revealed that all factors high lighted to facilitate good performance of students in metal work were agreed to, with varying degrees of acceptance. Respondents seem to favour rewarding of students, having qualified teachers to handle metal work and provision of well equipped workshop with tools, material and machine tools. This is in agreement with work of Onwuchekwa, (2003) who observed that workshop/laboratory plays important role in

instructional activities in metal work technology and contended that with introduction of entrepreneurial courses in curriculum of Technical College metal work trades, graduates of metal work trades will be equipped with knowledge and skills necessary for them to manage small-scale enterprises.

This study also found out that encouraging teachers to embark on further training, regular workshop practice on all topics taught and the uses of models and instructional aids in teaching of metal work will facilitate good performance of students in metal work technology. This is in line with Oderigwe, (1970) who stressed the importance of instructional facilities in schools and emphasized that effective implementation of metal work technology programme can be done by adequate supply of instructional materials for good practical training.

The findings of this study as revealed in table 3 shows that several strategies could be adopted for improving the teaching of metal work trades. It is important to emphasize that greater priority was laid on utilizing current information through the use of internet and the use of small scale industrial persons such as road-side welders and panel beaters. This seems to be in line with the current government reform agenda where participation of private sector in the economy through the use of small and medium enterprise investment equity scheme (SMIES) is emphasized (NEEDS blue-print, 2004). Commenting on how to bring normalcy back to the management of technical colleges for efficient performance Adebayo (2003) maintained that at second international congress on Technical and vocational education, 2002 it was emphasized that: There must be a new partnership between education and world of work to address the need to develop a synergy between the sector of education (Technical Education) and industry and the various other economic sectors; to foster the development of generic competence, the work ethic, technological and entrepreneurial skills and for imparting human values and standards for responsible citizenship. From the foregoing, it is evidently clear that Nigeria as a nation should emphasize functional education capable of turning our economy around and ensuring self reliance.

Conclusion

It is quite clear that the needed type of education in Nigeria is a functional type of education in which students will acquire a specific skill in order to be self-reliant. This has been emphasized in this study. Much cannot be said to have been achieved in earlier programmes. It is hope that 'NEEDS' as government reform Agenda will operate in order to carry all sectors of education along, particularly metal work so as turn economy around.

Recommendations

- Based on the findings of this study the following recommendations were made: that
- As a matter of urgency a well-equipped workshop with tools, materials and machine tools should be provided as a result of collaboration between government and private enterprises.
 - Students with outstanding performance in metal work should be rewarded with textbooks by appropriate authorities.
 - The use of models and instructional aids in teaching of metal work should be emphasized by the teachers.
 - The utilization of current information through the use of internet should be encouraged by the teachers.
 - There should be collaboration in the use of small-scale enterprises as resource persons in teaching metal work trade.

Teacher's salary and other allowances should be paid regularly.
Professionally qualified teachers of metal work technology should be employed.

References.

- Abubayo, S.A (2003) Managing Technical College programmes for self-reliance. A challenge to Democratic Government of Nigeria in Nneji, N.G; Ogunyemi, M.A.A; Onyekwu, F.O.N; Ukponson, M; and Agbato S.O. (Eds) Technology Education in a Democratic Nigeria. 16th NATT Conference proceeding.
- Agbato, A. M. (1994) School personnel Management: A Nigerian perspective. Lagos, Lagos University press.
- Encyclopedia (2003) Vol. 7 pg 226.
- AN (2004) National Economic Empowerment and development Strategy blue-print. National Planning Commission, Federal Secretariat, Abuja.
- M.P. (2003) Effective Management of workshop Resources in Vocational/Technical Education for National Development. In Nneji N.G. Ogunyemi M.A.A; Onyekwu, F.O.N; Ukponson, M; and Agbato S.O (Eds) Technical Education in a Democratic Nigeria. 16th NATT conference proceeding.
- Angwe, B (1970) Selection Utilization and Evaluation of Instruction media Ibadan: Spectrum book Limited.
- Agbato, S.O (1988) Vocational and Technical Education in Nigeria (Issues and Analysis) Onitsha: Centre Educational Publisher
- Agbato, A.K. (2003) Introducing Entrepreneurial course in Technical College Metal Work trades for effective preparation of the recipients for self-reliance in a democratic setting. In Nneji N.G; Ogunyemi, M.A.A., Onyekwu, F.O.N; Ukponson, M; Agbato, S.O (Eds) Technology Education in a Democratic Nigeria. 16th NATT Conference Proceeding.