

TECHNOLOGICAL CURRENCY OF VOCATIONAL TEACHERS
IMPLICATIONS FOR TEACHING AND LEARNING

BY

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Introduction

There are major scientific advances in recent times. Technology is equally changing at a fast rate and most people are concerned with keeping abreast of today's knowledge. Those who work in technology related fields are faced with the challenges of technology and they must pursue continuous training and updating or risk becoming "obsolete" in a relatively short time. (Leske & Persico, 1989).

Some writers (Fafunwa, 1980; Itotoh, 1989; and Wonacott and Hamilton, 1983) have expressed the need for vocational teachers to keep pace with current technology. In a more recent analysis of the critical and competing issues in Nigerian vocational and technical education, Nwoke (1990) reported that "How to keep Nigerian technical teachers technologically current" was ranked fifth out of 25 "critical issues" in Nigerian vocational education.

As long as the vocational teachers are in the classroom and isolated from acquiring industrial experience, they are more likely to need some type of updating. Wonacott & Hamilton (1983) defined technological updating as "the technical (as opposed to pedagogical) knowledge and skills needed by vocational/technical teachers and instructors to provide their students with up-to-date preparation for the current technology of the world of work". Vocational teachers are to equip students to live effectively in our modern age of science and technology. They are to disseminate existing as well as new information in their occupational fields.

The need to provide in-service training including industrial attachment for updating the competence of technical teachers was recognized by the Federal Government in the National Policy on Education. (Federal Republic of Nigeria, 1981). However, Itotoh (1989) observed that teachers are very rapidly becoming irrelevant, obsolete and stale for the new objectives we are hoping to achieve by the new system of education particularly in certain subject areas and in affective and psychomotor considerations. To overcome the problem, I believe that solutions to technological updating can be derived from needs assessment of the teachers so that the available training avenues can be better utilised to achieve the desired objectives.

The concern of this study, therefore, is on the need to keep vocational teachers current so that graduates of vocational programmes are provided with the current knowledge and skills needed for employment. The problem appears to be enlarged by the regular revision of the curriculum in order to prepare students for the occupational

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challenges of the future. The National Policy on Education (1981) emphasises that "both the present and future needs of the country must be considered in making curriculum changes in technical education. Vocational teachers must be equipped to provide learning experiences that meet the changing occupational requirement.

The purpose of this study was to identify teachers needs for technological updating. The study was designed to answer the following research questions :

- i. Do vocational teachers perceive the need to know more about technologies in their fields?
- ii. Do teachers in different areas of specialisation differ in their perception of the degree of needs for technology updating?

Methodology

Population : The population was made up of all vocational teachers in post-secondary schools in Bendel State. This total 227 consist of 98 Agricultural Education Teachers, 49 Home Economics Education Teachers, 37 Business Education Teachers and 43 Technical Education Teachers.

Sample : The sample consisted of 170 vocational teachers randomly selected from five post secondary institutions in the State. The selection was based on subject areas and number of teachers in each field of specialisation. The composition being 71 Agricultural Teachers, 24 Business Education Teachers, 33 Home Economics Teachers and 42 Technical Teachers.

Instrument : The instrument used for this study was updating needs identification questionnaire (UNIQ). It consists of 12 major updating needs and a series of demographic questions. The teachers were asked to rate their degree of need for technological updating based on a four point scale (4 = very high need; 3 = high need; 2 = low need and 1 = very low need). The instrument was validated by four vocational educators. Their suggestions were incorporated in the final form of the instrument. The reliability was established by the test-retest method. The coefficient of correlation obtained was 0.81.

Data Collection and Analysis Techniques : A total of 170 copies of the questionnaire were distributed by hand and mail. A total of 130 copies were duly completed and analysed. This consisted of questionnaires from 62 Agricultural Teachers and 29 Technical Education Teachers. This represents 76% return.

In analysing the data, mean and standard deviation were used to answer the research questions. Also, Z test was used to ascertain the direction and magnitude of the difference among Agriculture, Business, Home Economics and Technical Education Teachers. Z test was used because the sample size is greater than 26. Based on a four point response scale, a mean of 2.55 and above indicate a high need for technological updating while a mean score below 2.55 indicate a low need for technological updating.

Results

Table 1 presents the means and standard deviations of the needs for technological updating based on 130 respondents. It revealed that vocational teachers need for updating vary according to the variables considered. Using the mean ratings as a summary, "Acquiring skill in the use of new tools and equipment" was rated as the highest need. The four items that follow in descending order of rated needs were :

- (a) Acquiring knowledge on the use of computer;
- (b) Updating subject matter skill;
- (c) Keeping up with new knowledge generated by research; and
- (d) Knowing recent findings in subject area.

"Updating subject matter knowledge" was the least rated need.

The differences in ratings of updating needs by vocational teachers in four occupational groups considered were ascertained using 2 scores. The results are in Table 2. The technical and business education teachers differ significantly in their self-perceived needs at the 0.05 level. The Technical and Home Economics teachers were significantly different at the 0.01 level. The same also goes for the Agricultural and Home Economics education teachers. The technical and agricultural education teachers hold about the same views while the same is true with agricultural and business education teachers.

Table 1 : Ranks, means and Standard deviations of needs for technological updating

Rank	Needs	\bar{X}	SD
1	Acquiring skill in the use of new tools and equipment	2.98	1.02
2	Acquiring knowledge on the use of computer in my discipline	2.95	1.04
3	Updating my subject matter skill	2.84	0.34
4	Keeping up with new knowledge generated by research	2.81	1.13
5	Knowing recent findings in my subject area	2.73	1.13
6	Acquiring skills to improve visualisation, and stimulate creativity	2.7	1.15
7	Ability to apply modern technology in the laboratory or classroom	2.69	0.98
8	Knowing new methods of production in my occupational area	2.46	1.06
9	Improvising technical tools in my subject area	2.42	1.21

Rank	Needs	\bar{X}	SD
10	Writing for publication in professional and technical journals	2.40	1.10
11	Acquiring skill in the use of new materials	2.33	0.40
12	Updating my subject matter knowledge	2.23	1.04

Table 2 : Analysis of mean difference in needs for updating within Occupational fields

GROUPS	MEAN	SD	Z
Technical Education Vs Agric. Education	2.87 2.71	0.60 0.42	1.29
Technical Education Vs Business Education	2.87 2.50	0.60 0.61	1.97*
Technical Education Vs Home Economics	2.87 2.41	0.60 0.63	2.69**
Agric. Education Vs Business Education	2.71 2.50	0.42 0.61	1.3
Agric. Education Vs Home Economics	2.71 2.41	0.42 0.63	2.12*
Business Education Vs Home Economics	2.50 2.41	0.61 0.63	2.23**

* Significant at 0.05

** Significant at 0.01

Discussion

The purpose of this study was to determine vocational teachers' needs for technological updating. The technical teachers had the highest need for updating (mean of 2.87 on a scale with 4 = high need). A possible reason for the highest need by this group of teachers is the impact of technological applications in technical field. Aina (1987) noted that "updating of teachers is an absolute necessity given the rapid pace of change in the technical field. Technical education is one area of knowledge in which it is difficult to be a master of the craft once and for all." If technical teachers are not current in the technology of their field, they will become stale and unable to teach the practices and information that are based upon present-day industry and methods of work, (Itotoh, 1989; Ander, 1953). Generally, teachers must be familiar with the current practices of their occupation and constantly keep abreast of new developments, new techniques, new tools and equipment, and new ways of doing things.

The Agricultural teachers had a mean of 2.71 which is next to technical teachers. Following agricultural teachers are Business education teachers (2.50) and Home Economics teachers (2.41) in that order. The high mean of Agricultural teachers could be attributed to the use of technological equipment in the areas of (1) Crop Science and Soil (Agronomy); (2) Animal Science; (3) Agricultural Economics and Farm Management; (4) Farm Mechanics and (5) Agricultural Extension. Besides, new methods of production are frequently employed.

Agricultural teachers did not perceive the need more than the Business teachers since the two groups were not statistically different. A possible reason is that the two groups of teachers make use of the products of technology in about the same level. Modern technology is having effect on agricultural equipment, products and processes. Much of the business matters are made faster by the use of computers. Computer is now seen as a tool in Insurance, Banking and other business transactions.

Implications of the Study

The primary motive of teaching is to bring about desired change in behaviour. An essential qualification of the vocational teacher is the ability to transfer knowledge, skills and attitudes necessary for occupational competence (Dubravcic, Chinien and Pratzner, 1986). These must be imparted to students before desirable practices and attitudes can be developed. Vocational teachers are to disseminate existing as well as new information in their occupational fields especially those aspects of technology that will have immediate application in the classroom. There is the need, therefore, for vocational teachers to keep abreast of all the basic and specialised skills that may be required of an effective vocational programme in our schools.

There is a continuing demand to update vocational curricula in the latest technology. The National Policy on Education (NPE) stipulates that both the present and future needs of the country

must be considered in making curriculum changes in technical education (NPE 1981 : 29). These changing demands on vocational and technical education are major factors that can affect teacher quality. Vocational teachers are not likely to be effective unless they add to their occupational experience and academic skills necessary for teaching in vocational education programmes. They must become familiar with technological changes in processes, materials and equipment. Acquisition of current knowledge and skill will influence what they teach and their students will be equipped with up-to-date skills to be productive. These competent students will go into the world of work upon graduation to design, invent and conduct research which may lead to the development of improved products that are useful to the society.

In the light of the findings of this study, it is recommended that vocational teachers be provided with a wide range of activities for keeping technologically current. There could be a state wide survey to identify technological update topics which are critical for effective performance on the job.

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