AN APPRAISAL OF COMPUTER EDUCATION IN PRIVATE TRAINING CENTRES IN SELECTED STATES OF NIGERIA

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ABSTRACT

The study sought to determine levels of student performance in basic computer skills and to identify syntax errors that are common to students in private computer training centres. One hundred and twenty seven students from 14 computer training centres in 10 states were involved in the study. Mean, frequencies and percentages were used in analyzing the data. The result showed that the subjects have high performance in basic computer operations but need some improvement in debugging programs. The most common error of the subjects is logic error. It was recommended that the development of individual programs should be emphasized.

INTRODUCTION

In developed as well as developing countries, a lot of computer literacy programmes are going on because of the advantages of having computer skills (Jacker, 1973; Naisbitt, 1984; Stair, 1986; Kanu, 1987). In developed countries, the huge investment in computer training is to enable all high school graduates achieve computer literacy by the end of this century (Pollack & Stapleton, 1986; Itotoh, 1990). In Nigeria, efforts are being made to catch up with the rest of the world in computer literacy and education. The objective is to make Nigeria a computer literate society by the middle of the 90's (Aminu, 1989). Nigeria now has a National Policy on Computer Education. There are a number of computer training programmes in private schools owned by individuals or companies. Also, the computer is gradually finding its way into the public schools.

As at 1991, there were about 450 computers in the 45 Federal Government Colleges (Fafunwa, 1991). One can possibly predict that some of the State Governments will soon have computers in their model schools. If the nation can spend a lot of its foreign exchange earnings on the purchase of computers and their peripheral devices, efforts should be made to ease the learning of computer operation and programming. To do this successfully requires the appraising of computer training programmes in the

private training centres in terms of performance and learning difficulties so that workable improvements can be made.

There are many reasons for having computer education. Naisbitt (1984) remarked that computer offers a cost-effective way of individualizing education and simplifies record-keeping. Therefore, to acquire knowledge in using the computer is to acquire saleable skills. Computer can be used for transactions in banks and shops, weather forecasting, disease diagnosis, design, manufacturing and instruction. (Sass, 1979; Mandell, 1983). In Nigeria, computer can assist in keeping of account, student records, print production and distance education programme among others (Tseja, 1989). Computer is a versatile tool in the delivery of instruction because it encourages students to learn and progress in learning. Jenkins (1979) remarked that computers can be used in school to keep track of students progress individually, determine the needs and abilities of each student and determine what each student should do next to reach learning targets. This is Computer Managed Instruction (CMI). Similarly, students can be placed at the terminals for direct "interaction" with the computer. Using appropriate software, students can do mathematics, science or reading exercises by responding through a keyboard to questions posed by the computer and printed at the terminal. This is termed Computer assisted Instruction (CAI).

A major problem facing the introduction of computer technology and education to Nigeria is the lack of trained personnel to provide regular maintenance, technical support services, and to teach computer education courses in our schools (Aleyideino, 1989; Tseja, 1989). It is essential that the products of computer training centres have to be adequately trained to meet the challenges in business, education and the world of technology. Graduates of the training centres can influence computer education programme in Government Schools and assist in meeting the needed skilled human resources in this area. The purposes of the study, therefore, were to find out the extent to which students can perform computer skills and to identify the syntax errors that are common to the students. The errors are usually violations of the rules associated with the particular programming language.

The study sought answers to the following questions:

1. To what extent do respondents from private training centres perform basic computer skills?

2. What are the syntax errors common to the respondents from private training centres?

Akinseinde, S.I.

METHODOLOGY

Population

The population for this study consisted of 158 students in 14 private computer training centres in 10 states of Nigeria, namely, Abia, Anambra, Delta, Edo, Enugu, Imo, Lagos, Ogun, Oshun, and Oyo States. The entire population was used for the study. Private training centres are computer schools owned by individuals or companies in Urban centres in Nigeria. The 127 respondents were made up of 43 WASC/GCE holders, 34 OND holders, 23 NCE, 9 HND and 18 B.A/B.Ed/B.Sc. holders. They were made up of 68 (53.5%) males and 59 (46.5%) females. Thirty-five per cent of the respondents intended to write computer examinations of the Institute of Data processing & Management (IDPM) or City & Guilds of London Institute (Course No. 491).

RESEARCH INSTRUMENT

A four-point Computer Education Competencies Analysis Questionnaire (CECAQ) was developed through literature review and interviews with managers of computer training centres. The respondents were asked to rate the extent to which they can write programming language and perform basic skills in computer. They were also required to indicate the common syntax error they make. The final part of the questionnaire dealt with demographic matters. The instrument was validated by three experts in computer education. Their corrections were reflected in the final draft of the instrument.

DATA COLLECTION AND ANALYSIS

A total of 158 copies of the questionnaire were mailed to the training centres. In each of the centres, only those who have spent a minimum of 3 months in learning computing were qualified to fill the questionnaire. A total of 127 copies were properly filled and returned. Mean and standard deviation were used to determine the level of performance of each skill. Nominal value of 4 to 1 were assigned to the different options in the scale. (4 = very high; 3 = high; 2 = low; 1 = very low). The mean of the nominal value was 2.50. Based on an interval scale of 0.05, the upper limit of the cut-off point is 2.55 while the lower limit is 2.45. Any response with a mean of 2.55 and above was regarded as high performance and any that was below 2.55 was regarded as low performance. Frequency and percentages were used to determine the common syntax errors made by respondents.

FINDINGS

The findings of this study are presented in tables 1 and 2. Table 1 shows that all the items on programming and the use of computer were rated above the cut-off point of 2.55 except (1) writing of program in FORTRAN, (2) writing of program in COBOL

and (3) debugging of program. The table reveals that the respondents are good at writing program in BASIC language (mean of 2.57). Items 5 to 13 have mean rating above 2.55. This implies that the respondents are good at operating micro-computers. By the ranking shown in Table 2, it can be seen that "logic error" received the highest rating from the respondents (19.7%). They rated the next three errors as (a) Subscript error (17.3%); (b) Input data error (15%); and (c) Omission of words (12.6%). The least error of the respondents is the "missing period" (1.6%).

Table 1: Means and Standard Deviations of Respondents on Skills in Programming and the Use of the Computer

		X	SD
1.	Write a program in BASIC	2.57	0.96
2.	Write a program in FORTRAN	1.86	0.86
3.	Write a program in COBOL	1.87	0.84
4.	Debug a program	2.20	0.98
5.	Enter a program into a computer	3.06	0.97
6.	Compile a program	2.82	0.96
7.	Run a program	3.04	1.05
8.	Create a computer file with name and address on it	2.68	1.12
9.	Put data into a file	3.24	0.91
10.	Delete a file	2.96	0.97
11.	Create a data file	3.32	0.83
12.	Use the right commands	3.49	0.50
13.	Run the software packages built into the system	2.86	1.00

Akinseinde, S.I.

Table 2. Ranking of Syntax Errors by Respondents

Rank	Description of Error	Frequency	Percentage
1	Logic error	25	19.7
2	Subscript error	22	17.3
3	Input data error	19	15.0
4	Omission of words	16	12.6
5	Missing hyphen	14	11.0
6	Misspelled word	12	9.4
7	Spacing error	10	7.9
8	Misplaced periods	7	5.5
9	Missing period	2	1.6
		127	100

DISCUSSION

The purpose of this study was to verify the extent to which students in private computer training centres can perform basi computer skills and to identify common syntax errors. Th results obtained from Table 1 showed that the students have his mean in writing programs in BASIC language. This is an advantag since simple programs written in BASIC language can be run o computers with limited memory (Austing & Cassel, 1986). It i possible that the learning of BASIC is more emphasized tha FORTRAN and COBOL in most of the training centres. It may b necessary to attach more importance to COBOL which is a standar language for business data processing.

The analysis of result showed high mean rating on basi computer operation such as (1) run a program, (2) put data int file, (3) delete a file, (4) use the right commands and (5) rt software packages. The ability to perform these operations wil enable students use computers for productive work such as record keeping, demonstration, tutoring, drill and practice. A low mea rating on "debugging of program" (2.2) seems to indicate tha students find it difficult to correct all mistakes in progran written by them. A skill in debugging is essential fc determining the necessary changes to make in a program for it t be executed by the computer.

Table 2 shows the distribution of syntax errors. These errors are caused by violation of the rules associated with a particular programming language. Austing & Cassel (1986) described these as very strict rules for combining characters to form recognizable instruction. Respondents rated "logic errors" as the most popular (19.7%). These are mistakes due to incorrect logic in the solution of the program. Mandell (1983) contended that such errors may result when the programmer does not fully understand the problem or does not account for problems that may arise during processing. It is essential that students be skilful at detecting mistakes or flaws in a program.

CONCLUSION

Computer training must be comprehensive so that students can derive maximum benefit from it. Computer students need more assistance in writing good programs and locating program bugs. Programming demands the ability to think logically. Students need encouragement because the process of locating program flaws can be frustrating to the new computer users who had no computing background. They need to run and rerun a program before the cause of an error can be found. There is the need to provide necessary guide for reducing syntax error. This will invariably reduce the amount of time spent on debugging.

It is recommended that computer appreciation and the acquisition of basic computer skills should precede the development of individual programs.

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