

ANALYSIS OF THE PERFORMANCE OF EMPLOYED IT GRADUATES AT DIFFERENT HIGHER LEVELS OF EDUCATION.

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Abstract

The integration of Information Technology (IT) to education is needed to ensure high quality educational system. In this paper, different IT firms were consulted to know the performance of employed IT graduates based on their respective IT related fields specifically, computer engineering, software management, programming, software design and information and communication. The main objective of this study is to propose to IT firms an appraisal system for evaluating personal performance of her employees and also to propose a way of restructuring the curriculum of academic institutions. Fifty questionnaires were administered and the data gathered were analyzed using an Analysis of Variance (ANOVA) test statistic. The hypothesis tested was that there is no difference in the performance of graduates based on the category of schools. The result from the analysis was significant which indicated that the performance of IT graduate at different level of education differs.

Keywords: IT, ANOVA

Introduction

Information Technology is the use of modern technology to aid the capture, storage, retrieval, analysis and communication of information, whether in form of data, text, image or voice. Today, the term information technology has ballooned to encompass many aspect of computing and technology, and the term is more recognized than ever before. Information technology can be quite large, covering many field, IT professionals perform a variety of duties ranging from installing applications to design complex computer networks and databases. A few of the duties that IT professionals perform may include data management, networking, engineering, computer hardware, database and software design as well as management administration of entire systems. IT career does not just mean working in the information and communication technology industries but because IT is used by all business, government and schools, the choice of industry to work in is as large as economy itself. The role of IT in supporting business strategies and operations has been evolving rapidly for the past years and will certainly continue to change (Metcalfe et al., 2002). The integration of information technology in education is a central matter in ensuring quality in the educational system. There are two equally important reasons for integrating information technology in education. Firstly, students must become familiar with the use of information technology, since all jobs in the society of the future will be dependent on it, and secondly information technology must be used in all levels of education in order to improve its quality and make it more effective.

In a society, which is becoming increasingly dependent on information and the processing of knowledge, great demands are therefore made that the individual should have a solid and broad educational foundation on which to build. Educational policy in the information society must ensure that:

- IT qualifications are developed by means of their integration in all activities in the education sector and
- The individual citizen must have an active and critical attitude to developments and passively allow technological development to set the pace.

An IT educational policy must ensure that:

- ✓ There are up-to-date qualifications in the information society:

Ole (1998) stated that “up-to-date qualifications gained against the background of a high general level of education in the population will be decisive if Denmark is to maintain competitiveness and its share of the global market in the information society”. IT skills and IT understanding are thus central prerequisites for the individual, both now and especially in the future. It is therefore necessary to develop skills as well as basic IT operating skills. IT skills are obtained mainly through prolonged experience in use. Therefore, it should be part of the ministry’s strategy that the

educational system be so arranged that pupils and students become accustomed to regarding IT as a tool to be used in the learning process.

- ✓ There is integration of new pedagogic opportunities:

New pedagogic opportunities must be explored and tested, just as new forms of communication must become established among pupils, students, teachers and the education sector as a whole.

The present globalization trend in the world of IT presents both opportunities and challenges to both developed and developing nations. The trends of IT globalization are increasingly improved so as to meet the necessary standard. Some of the trends are highlighted below:

- (i) The growth of networks
- (ii) Advances in the applications for data processing
- (iii) Innovations in software development
- (iv) The migration of computing into other devices and equipment

Because of the globalization trends of IT, some pre-tertiary student tend to become IT professionals, for this to be manifested, they need to be well educated and oriented. The IT professionals hailing from different levels of education having the same and/or different degree qualification will certainly possess different intelligent quotient through the institution academic curriculum. There is chronic preferential treatment for skilled IT staff of different degree qualification. This existence of graduates' inequality brought about the comparative study of performance of university, polytechnic and colleges of IT graduates in IT firms. The comparison is based on these IT career namely: computer engineering, software management, programming, information and communication, and software design.

The objectives of this paper are clearly highlighted below:

1. To review the trends of information technology
2. To know whether there is significant difference in the performance of IT graduates at different levels of Education.
3. To determine the level of IT graduates that perform better in each of the category tested.
4. To propose to government, academic institutions and industries on the way forward.

This study is therefore on a performance analysis based on different features in order to achieve the stated objectives.

Levels of Education in Nigeria

Higher Education is the third category of the education system in Nigeria, comprising collectively the Colleges of Education, the Polytechnics and the Universities (UNESCO, 2008). The institutions in this category prepare students that undergo studies in them for the world of work and these are:

College of Education: This is a higher education institution recognized by law to award the professional teacher's certificate, NCE. This is a professional teacher's certificate awarded by a college of education (or its equivalent). It is the minimum certificate that qualifies one to teach in the country. It provides 3 years full-time and 5 years sandwich courses respectively leading to the award of Nigeria Certificate in education (N.C.E). Some of these colleges are also recognized higher institutions that award bachelor's degree in education and education based courses.

Polytechnics: These are institutions alternative to and complementary to the universities. They award two certificates namely:

National Diploma (ND): This is a two-year, between 120-140 credit units programme, which prepares students for middle level technician undertakings. It involves a combination of both practical (workshops and laboratories) and classroom work of four semesters, with a mandatory four (4) months industrial attachment, immediately after the second semester.

Higher National Diploma (HND): This is also a two-year, between 120-140 credit units programme, which prepares students as Technologists. The training is similar to that of the ND programme except for the absence of a mandatory industrial attachment. To progress from the ND programme to the HND programme requires a compulsory at the least, one year (12 months) industrial training.

Universities are higher institution of learning where courses of study lead to the award of Bachelor's degree.

Innovations in the field of information technology (IT) continue to increase at an ever spiralling rate; advances in operating systems, software, communication devices and methodologies are renovating the inventory of IT products on a near daily basis. Businesses are embracing many of these technologies and are anticipating that university graduates will have the skills to quickly adapt to their business environment and choices of technologies. The IT educator plays a significant role in preparing students in IT fields of study to enter the IT-permeated business environment.

Gillard et. al. (2008) highlighted some factors that influence IT adoption among IT educators. IT educators are among the first targets in the market and must decide if and when to adopt these innovations in their instructions of students and professional endeavours. It is stated that professionals in the information technology field are bombarded with an incessant stream of innovations in hardware and software as well as practices, methods, and techniques. Their paper present ten reasons IT educators should adopt, as soon as feasible, applicable IT innovations introduced into the marketplace.

Helfert (2008) viewed information systems study programmes from an engineering perspective and presents a framework for structuring information systems programmes within Europe by amalgamating the IS2002 and MSIS 2000 model curriculum with a recommendation for studying business informatics.

In order to form the basis for a discussion of future educational policy in the IT area, Flaherty (2003) proposed a report on IT strategy in the education sector and at the same time a policy proposal of IT for ministry of education, which should, among other things, provide an overview of the efforts made by the educational institution with a view to promoting the integration of information technology in the education sector.

Sue and Coralie (1996) examined the integration of information technology (IT) into Higher Education teaching in the UK. The authors look at the current status of IT in universities and states that IT is only valuable if it is used in educationally sound ways. They highlighted the barriers to the integration of IT and ways in which it could be more effectively adopted and state that the majority of staff need support if they are to use IT to its full potential and suggests ways of bringing this about. They concluded that this has to be a long-term goal and that it requires many resources.

Methodology

Source and Collection of data

The data used for this study was primary data, collected from questionnaires administered to 50 IT staff from 5 IT firms in Lagos State, Nigeria ranging from senior staff officers to the directors. This gives a total of 250 respondents but during the course of the survey, two of the respondents were not around for submission. Figure 1 shows the frequency counts of the respondents based on areas of assessment and category of schools.

		Category of School			
		Polytechnic(1)	University(2)	College(3)	
Area of Assessment	Computer Engineering	20	28	1	49
	Software management	14	33	3	50
	Programming	13	36	0	49
	Information and Communication	24	21	5	50
	Software Design	14	36	0	50
Total		85	154	9	248

Figure 1: Distribution of respondents across higher levels of education where 70% of the respondents were male and 30%, female.

Analysis of Data

The data were analyzed using Statistical Package for Social Sciences (SPSS) Version 16.0. The statistical hypothesis tested for in this study is:

H_0 : There is no significant difference in the performances of IT graduates based on the category of school.

H_1 : There is significant difference in the performances of IT graduates based on the category of school.

Result

Tests of Between-Subjects Effects

Dependent Variable: COUNT

Source of Variation	Type III Sum of Squares	Degree of Freedom	Mean Square	F	Significance (P-Value)
Corrected Model	2104.533 ^a	6	350.756	10.271	.002
Intercept	4100.267	1	4100.267	120.066	.000
ASSESSMENT	.400	4	.100	.003	1.000
CATEGORY	2104.133	2	1052.067	30.807	.000
Error	273.200	8	34.150		
Total	6478.000	15			
Corrected Total	2377.733	14			

a. R Squared = .885 (Adjusted R Squared = .799), $\alpha = 0.05$

Figure 2: ANOVA test result

From Figure 2, it could be seen that Null hypothesis is rejected since the P-value (0.000) < 0.05. This implies that there is a significant difference in the IT performance based on the category of schools with respect to the areas of Assessment.

Furthermore, since there is general significant difference in the performance of IT Graduate based on the category of schools, there is need to know which specific category of school that do differ from each other using Least Significance Difference (LSD)

From Figure 3, picking each category of school we could see that the performance of Polytechnic differ from that of University and College at 5% level of significance. Also, the same thing when we compared the performance of the University graduates with that of Polytechnic and college of Education and so on. However, from the mean difference, we could observe that the University Graduates has the highest mean followed by the Polytechnic and the College of Education. This showed that the University Graduates perform better in IT firms.

Multiple Comparisons

COUNT

LSD

(I) CATEG ORY	(J) CATEG ORY	Mean Difference (I-J)	Std. Error	Significance (P-Value)	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-13.8000*	3.69594	.006	-22.3229	-5.2771
	3	15.2000*	3.69594	.003	6.6771	23.7229
2	1	13.8000*	3.69594	.006	5.2771	22.3229
	3	29.0000*	3.69594	.000	20.4771	37.5229
3	1	-15.2000*	3.69594	.003	-23.7229	-6.6771
	2	-29.0000*	3.69594	.000	-37.5229	-20.4771

Based on observed means.

The error term is Mean Square(Error) = 34.150.

*. The mean difference is significant at the .05 level.

Figure 3: Multiple Comparison using LSD

Suggestions

From the results of the survey, it is the aim of this paper to propose to the body of the government in charge of curriculum development to include major areas of Computing in the curriculum independent of the category of all higher levels of education.

To adopt change for the sake of change is, however, inappropriate and inefficient. There are multiplicities of new technologies that are appropriate for IT educators, and thus IT educators should not succumb to complacency but accept their position of leadership and be among the early adopters of appropriate technologies.

Secondly, with the ever-increasing speed at which IT continues to advance, business, industry, educational institutions, and educators are placed in a precarious position. It is often a significant financial investment to adopt new technologies; in this case IT educators should be trained as the new technologies are being improved so as to re-train the students.

In order to evaluate personal performance, a good appraisal system can be extremely useful in identifying support needs, and is also one of the best ways of judging performance. An effective appraisal system should have four key stages namely:

- **Set objectives** – be clear in your own mind what you want from employees and make sure they know what that is.
- **Manage performance** – provide your employees with the tools, resources and training they need to perform well.
- **Carry out the appraisal** – monitor and assess your employees' performance, discuss those assessments with your employees and agree on future objectives.
- **Provide rewards/remedies** – consider pay awards and/or promotion based on the appraisal and decide how to tackle poor performance.

Thirdly, IT firms should integrate these stages of an appraisal system into their system so as to attain a better goal. Based on the result from the analysis, IT firms should also not base their employment on the level of education since there is every opportunity to train their employees.

Conclusion

Integrating IT into all aspects of education is a major challenge because of the benefits that could be derived. A survey was carried out in order to know the impact of IT education on the graduates from 3 different higher levels of Education namely University, Polytechnic and Colleges of Education based on their performances in IT firms in order to determine which category of Schools perform better in IT using statistical analysis. Five IT firms were visited and 50 questionnaires were administered to IT staff ranging from senior staff officers to directors. The analysis was carried out using SPSS software and the results from the analysis showed that there exist significance differences in the performance of IT graduates based on the category of schools having University IT graduate students perform better. However, in order to attain the vision 2020, there is need for different bodies concerned to integrate IT into Educational System in Nigeria in order to bridge the gaps between the IT graduates' performances.

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