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Application of Expert System for Quality Evaluation in Higher Educational Institutes

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Abstract:- The study examined impact of expert system as a tool for efficient teaching and learning process in educational system in Nigeria, using University of Port Harcourt in Rivers State, Nigeria as a case study. The specific objectives of the study include to: Identify types of expert systems available to the teaching and learning process in the study area; Identify expert systems used in the education sector in the study area; Identify human systems used in the study area; determine the extent to which expert systems influenced performance of students in the study area; determine the extent to which human expert system influenced performance of students in the study area; determine perception/satisfaction of teachers and students on application of expert systems in the teaching and learning process.

Keywords:- _Expert System, Efficient, Process, Educational, Impact_

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I. BRIEF INTRODUCTION

Introducing an expert system as tool in the teaching and learning process in the Nigeria educational system is a much needed step to improving the process, this is because it is filled with a few challenges involved. The advent of computer system has definitely opened way to Computer Aided Instruction (CAI) for which an expert system is one. An expert system is a well known area of artificial intelligence which is a computerized tool designed to enhance the quality and availability of knowledge required in educational system.

Expert System and how it works:
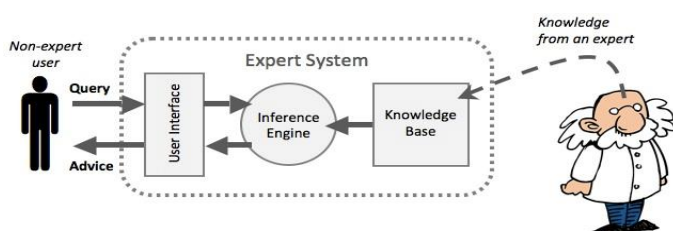
II. BRIEF RELATED WORK

Application of Expert System for Quality Evaluation in Higher Educational Institutes" IRACST - International Journal of Computer Science and Information Technology & Security (IJCSITS), ISSN: 2249-9555 ; 6(2). (Gaikwad, A.T (2016).)

 "The development of CAI: An Expert System in Education" US Department of Education,1985 (Kaiser & Javaid(1985).)

Use of High Technology in Teaching for Effective Learning National Conference Proceeding –National conference & workshop on virtual instruments, embedded systems & robotics March 2004, Gwalior India. P-76 (Pathan , A.J (2004).)

Expert systems advances in education. National conference on computational instrumentation csio Chandigarh, India, 19-20 March 2010 (Satvika K., Akhil, K., Manoj, B. (2010))

Technology in higher education. New Delhi: APH Publishing corporation (Siddiqui, M. I. (2007))

The Principles of Designing an Expert System in Teaching Mathematics. Universal Journal of Educational Research 1(2): 42-47. (Salekhova, L., Nurgaliev, A., Zaripova, R., and Khakimullina, N. (2013))

III. OBJECTIVES OF THE STUDY

The main objective of the study was to examine impact of expert system as a tool for efficient teaching and learning process in educational system in Nigeria, using University of Portharcourt in Rivers State, Nigeria as a case study. The specific objectives of the study include to:

Determine the extent to which expert systems influenced performance of students in the study area

Determine the extent to which human expert influenced performance of students in the study area

Determine perception/satisfaction of teachers and students on application of expert systems in the teaching and learning process

IV. METHODOLOGY

The term methodology is the overall approach and perspective to the process which outline the entire research

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plan.my research work is a descriptive research to find out new facts by using expert system in teaching the students and comparing this method with the human expert, previously the human expert has been teaching and no improvement.

This is descriptive survey method used in this research work which enable the researcher to make use of a sample out of a large population.

Scope / Limitation of Study: included students in the Faculties of Science and Faculty of Engineering.

Population of the Study: The population of the study is One hundred and fifty students were randomly selected from each of the two faculties to give 300 respondents.

Simple Random Sampling. – 300 Students was randomly Selected however, only 246 questionnaires were usable hence sample size was based on this number.

Instrumentation (Structured Questionnaire) ,This is closed ended Questionnaire which options are given for the students to choose from them.

- Tools for Collection of Data
- Collection of Data using Respondent
- Collection of Data using Objective
- Collection of Data using Hypothesis

V.   SOFTWARE FOR DATA ANALYSIS

DATA ANALYSIS:-
- Spread sheet: - (Excel)
- Frequency, Percentage & T-Test
- Algorithm: - (Ruled Based Algorithm)
- Pseudo code for the education data mining
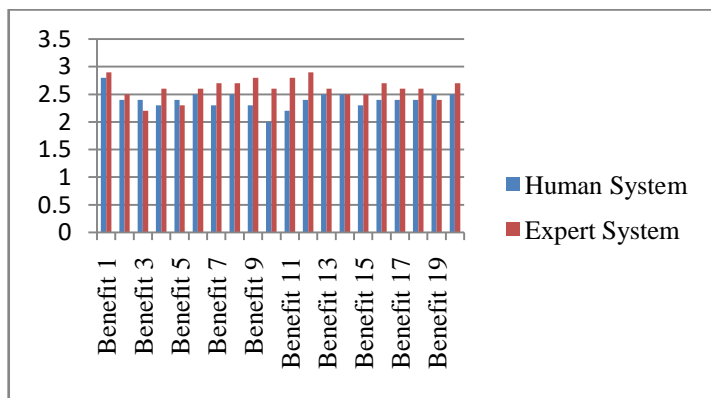
VI.   RESARCH RESULT

Figure 12: Means of the benefits of Human Expert / Expert System

5.2.2 Mean of the benefits of Human systems and Expert Systems

From Figure 1, it can be seen that out of twenty (20) listed benefits, Expert systems had higher mean scores in sixteen (16) benefits as against three (3) for Human systems, and just one (1) benefit (Benefit 14) where both Expert systems

and Human Systems had the same mean score (2.5). This clearly shows that the respondents consider Expert systems to be more efficient than Human Expert in the educational system in higher institutions.

VII.   FUTURE FRAMEWORK

The following Future Framework are given:
- In Future working with foreign university for effective work done
- In Future working with foreign university and other domain
- In Future working with other experts from other areas
- In Future doing Collaborative work with other experts
- In Future working with other university in Overseas
- In Future Working with Experience Expert
- Taking expert system to higher levels based on its benefits
- Collecting data from other university, not in one university alone
- Telling Higher educational institutions in Nigeria to invest more in human capacity development in use of expert systems
- Carrying out Periodic and regular training on the use of expert systems which is necessary to strengthen the use of expert systems

VIII.   CONCLUSION

The study further concludes that there is no significant difference between satisfaction of male on one hand and female on the other. Also, there is significant difference between adoption of male on one hand and female on the other. There is no significant difference between satisfaction of male on one hand and female on the other. However, significant difference exists in the gender of student's performance exposed to expert system.

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