

Comprehending the Concept of Information Technology using its Facilities by University Students (a study on the Sudanese Jordanian College Students for 2015 at Information Technology and Engineering Software Sections - first Year Grade)

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Abstract: *The paper discussed the term of Information Technology (IT), which is most commonly used term, the IT has assumed an outstanding class in contemporary societies and overlapped in all the details of life, became a cause of the civilization of peoples and the progress of nations. This paper also discussed the problem of lack of comprehending the concept of information technology by the university students and worked to find the reasons, a study had been conducted by distributing a questionnaire to a random sample of university students. The distinguished results showed that the lack of an appropriate environment and the lack of technological infrastructure in the community and Universities are the reason behind the lack of students' comprehending the importance of using information technology, as well as the role of students' financial problems, where it was found that a rate of 3.26% of the students studying information technology did not comprehend the concept of information technology and did not use its means. The paper recommended on the importance of applying E Government in Republic of Sudan to link all transactions and procedures electronically, this leads to a quantum leap in the development of Sudanese society, which increasing the awareness of the information technology concept, and develop the infrastructure of University Colleges in Sudan, and the importance of the adoption of electronic procedures for the academic and administrative transactions especially the basic procedures for instance (Date, results, certificates).*

Keywords: *Technology, Information, Information Technology.*

I. Introduction

There were tremendous developments occurred in information technology field resulted in the emergence of numerous and varied information services, all designed to meet the needs of information users, the digital revolution have affected the human life, those developments that began in the last quarter of the twentieth century include three areas, namely, information revolution, communications revolution and electronic accounts revolution, the information revolution is intrinsically tied to the advanced information technology through the joint use of electronic computers' systems, and modern communications systems.

1.1. The Information

The information is known as a group of organized and formatted data in a way gives special meaning and homogeneous combination of concepts and ideas that human being can benefit from use it in access and discover the knowledge, according to the encyclopedic definitions for libraries and information, the information is defined as a data that has been processed to achieve a certain goal or a specific use for the purposes of making decisions, in other words it is the data that became worthy after it had been analyzed, interpreted or recorded, and published and distributed in a formal or informal image and in any form. The importance of information be in its composition a vital role in the lives of individuals and communities, it is an indispensable element in any activity we usually practice, it is the raw material for scientific research, the main test of making the right decisions, and who have the right information at the right time is the one who has the element of the power and control. Information help transferring our expertise for others, and to solve the problems that confront us, and it is characterized by affluence, ease of copying, suitable timing, clarity, accuracy, validity, quantification, flexibility, impartiality, accessibility, comprehensiveness and auditable.

1.2. Technology

The origin of the word technology due to the Greek word consisting of two syllables are "Techno" which is mean technical skill, and "Logos" means science or study, while some others believe that the first syllable of the word "Technology" is derived from the English origin word "Technique" which is mean technique or practical performance, hence the technology is technique or practical performance science, any science that deals with the application of theories and research findings reached by the other sciences in any sphere of human life to serve and to develop and increase the effectiveness of practical life.

The concept of technology is linked in three directions: the scientific knowledge which is meant harnessing scientific human knowledge and his mind capabilities in order to achieve the required purposes of scientific applications, the discoveries, the inventions (devices, tools and discoveries resulting from the scientific application of knowledge), and the practical applications which the results obtained by human being through practical applications for the purpose of human development and improvement of its performance in various types of computer applications.

There are many areas of technology, including medical technology, agricultural technology, manufacturing technology, space technology, technology education, and information technology, which is our main concern.

1.3. Information Technology

The concept of technology had been associated with industries first, then turned to the concept of information technology, its component is information, we may consider this term from two angles, the first pertaining to information and the second associated with techniques that were used in the treatment process, which is one of the important advanced technology components and there is close association between it and the other advanced technologies, the information technology constitutes a comprehensive umbrella for each technology relations with data of human thought. The information technology can be defined a comprehensive definition as available accumulated group of knowledge, experience, skills, tools, material instruments and administrative tools used by humans to obtain the information (in all its forms), to process, transmit and store in order to facilitate access to the information, exchange it and make it available to everyone.

The most important characteristics of information technology:

1. Reducing the time, the technology make all electronic places adjacent.
2. Reducing the place where you allow the storage means which accommodate a huge amount of information stored and which can be accessed easily and smoothly.
3. Raising the productivity, where information technology works on to promote higher productivity when it had been used well and effectively.
4. Flexibility, as the uses of information technology varied, e.g. computer that we use in our daily live.
5. Reduce the cost and fasting speed time in same time.

The information technology is important because it is considered as a key driver for the development of all sciences, which represent a significant support for various sciences and all life activities, playing an important role in advancing education and knowledge in various sciences to new horizons and modern ways to acquire knowledge and take advantage of its means with different ways and circumstances, it is now possible to inquire about an information in different times and circumstances, and from a variety of sources, knowledge is become global by virtue of information technology.

1.4. Information technology and education

The education in its general and comprehensive sense, is a transfer of expertise from generation to generation, universities and institutes plays a key role in the process of transferring the science and knowledge, as a result of developments, including information technology much Universities and technical bodies began to reconsider the education system to find a new ways in the education process.

The technology associated with education in general since ancient times, and an entire branch and independent specialization known as (Education Technology) had been created, the E-learning methods and the use of information technology in the field of education and training has changed the nature of education and pedagogy, and contributed significantly to the reform of this field and add the impress of renewing and innovation on the education through the process of integrating modern technology, the education and training has become accessible to all and proportional to all levels of education.

The use of information technology in education means that there is an element of technology in the educational process or an enriching and facilitating the teaching and learning processes that means using technology in the educational process by means of audio and video and lighting, computers etc.

1.5 The development of computer progress in Sudan

The first computer had been brought in Sudan in 1967 to found Computing Center at the University of Khartoum in order to train students and to serve scientific research and administrative affairs, and then the Electricity Department followed brought computers in managing client accounts in 1968. The following year Statistics Department brought computers for statistical uses, situation remained on what is it until the Seventies (1970s), where the Railway Administration and the Sudanese Japanese Textile plant had brought computers in its administration departments, in the year 1977 computers had been brought to the econometrics division at the University of Khartoum for the same purposes of the computer center. During the years 1978, 1979 and 1980, the evolution of the uses of computers have happened since introduced more than fifteen Computer Corporation in

its management because they entered small computers of high ability and easy to use and backed by practical suitable applications and affordable prices, this kind of computers lasted to spread until the mid-eighties exceeds fifty devices, most of these computers were in banks and commercial companies, in the second half of the eighties microcomputer began to replace the small computers and its use spread, so we do not see a commercial or government organization, with no computer regardless of the efficiency of that computer. The use of computers in education were widened for its high features, including without limitation creating an active and interactive learning environment between machine and human being, developing students' skills to achieve the educational goals, developing students' positive orientations towards the materials that they consider it difficult and complex such as mathematics and other languages, presentations with video and images and movement or drawing and model which provide experience for the student better than the traditional method, reducing the proportion of boredom of learning among students, providing individual learning opportunities among students, helps to take into account the individual differences among students, helps to move the process of education and learning to home to gaining skills continuously, provides a great deal of different activities and programs helps to acquire information outside the course material, stores a large amount of information and perform a lot of processes with the ability to store and retrieve the vast amount of information and the ability to control and manage many of the accessories and the ability to interact.

1.6 Use of IT in education in Sudan

The Ministry of Education is seeking to achieve the goals, objectives and put a lot of plans and projects in this aspect, it has focused on many of the national plans and projects for the development of infrastructure, but it has been developed and integrated into the different areas except education, which is the slowest areas in response to the integration of information technology despite the projects, plans and recommendations, And educational institutions suffer from the weakness of the use of information technology due to physical causes, human and organizational management, and suffer education centers shortages in terms of technical equipment necessary for the reception of information technology, educational institutions requirements that lacks planning and coordination between them and the IT organizations information that reflected negatively on the Educational Services, where Sudan has the infrastructure and technical and human resources to overcome the many difficulties which are an obstacle to the use of information technology in education.

The education environment in Sudan is lack for information technology and communications, reforms only could be fulfilled by the efforts of government, reshaping and restoring the three education columns, teachers, curriculums and education grades, and resolve weak level of English language, and put an end to the phenomenon of brain drain, and put an end to the phenomenon of violence in universities, and treat the low turnout toward scientific courses.

1.7 University Education in Computer Field in Sudan

During the first decade of the introduction of computers in Sudan, 1967 - 1977, there was no training in this area except for some lectures Computer Center at the University of Khartoum and that purpose was to enable students to programming some mathematical, engineering and statistical equations, also during this period some students from the University of Khartoum at master's degree and doctorate in computer and some of the staff in the central administration and the interest were sent for scholarships, also some of central administration and Statistics Department staff had been trained for programming and analysis moreover to the technicians who have been trained by computers marketing companies on the maintenance of these computers.

During the second decade 1977 - 1987 some of those University of Khartoum scholarships have returned and increased national awareness of the importance of computers in developing administrative systems, then the global boom in computers occurred and uses technology that became necessary and Sudan must follow it and to participate scientifically and academically. Bachelor's degree in computer school of mathematical Sciences at the University of Khartoum had been entered, its first batch admitted in 1981 and graduated in 1985, and had applied in the University of Khartoum also applied to other universities, where computer studying became teaches in other appropriate disciplines.

1.8 Skills of Dealing with IT

There is considerable need to learn information technology, and how to include and using them effectively as a tool to learn, not only know how to operate the machine, but how it can serve the students in the curriculums and help them to comprehend and digest these curriculums, and that is the introduction of technology in the teaching and learning process has become an ongoing challenge for teachers, hence came the importance of preparing capable teacher for employing these technological innovations efficiently during the process of teaching, and that can be done only through the consciousness of the teacher to these innovations, that not meant teacher must be a professional in this area, but should have the logical capacity required to follow the modern technological developments, and to have the ability to read and comprehend the technological topics

and emerging issues, as well as the ability to comprehend how the work of core technology is necessary for the life of the individual, and have a sense of that technology is a mental effort helps students to comprehend the topics.

II. Field study about university student comprehending the concept of use of information technology and its means

2.1. For the case studied

Jordanian Sudanese College of Science and Technology is the fruit of cooperation of a group of Jordanians professors of the founders of Jerash Private University in Jordan for the purpose of providing excellent educational service in Sudan through a sophisticated application software with the use of the latest tools and techniques used in the field of education, and the faculty is made up of Sudanese and Jordanian professors. The College had been founded on a substrate curricula and academic disciplines, to award a bachelor degree in the following fields: (electrical and electronic Engineering, computer Science, administrative and accounting and epistemic information technology, software engineering, information technology, Islamic Studies and Law).

Study Methodology

The study followed the descriptive analytical method, for the analysis of a random sample at Jordanian Sudanese College first-year students from information technology section, and software engineering section, with a random sample of 100 students of both sexes, and the average age of (15-20) years.

The questionnaire contained variables of studied samples (gender, age, specialty, monthly income of the families of students) as well as comprehending the concept of information technology and the reasons for non-use its means. Sample analyzing and reaching the results had been conducted by using statistical software (SPSS).

III. Results Analysis

3.1- Age Variable

Figure (1) Show that the percentage of students whom are between the ages (15-20) their percentage reaching to 56.7%, which is the largest percentage, while students aged ratio between (20-25) reaching 32.3%, while students aged over (25) are to only 11.0%. Comparing the results, we find a large disparity between the percentages, this demonstrates that most of the students are pursuing their education in pre-university and non-stop sequence which shows the rise and improve the level of education in Sudan.

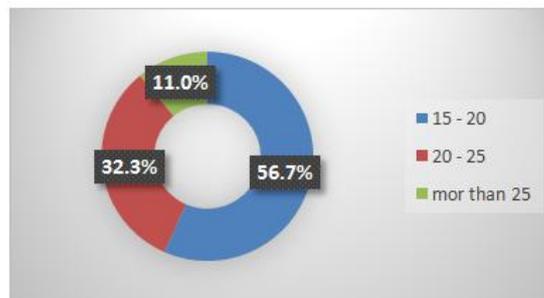


Figure (1)

3.2. Variable sex

In Figure (2) the ratio of males whom responded for this questionnaire was 67.7%, while the females' rate was 31.3%, due to the random sample which was chosen for the study.

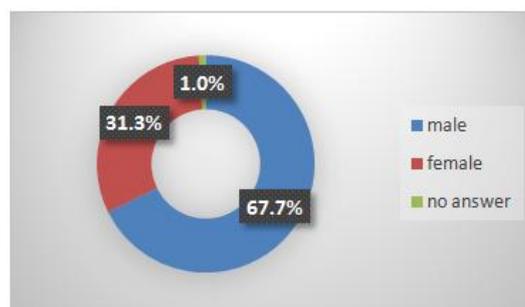


Figure (2)

3.3- Specialization Variable

Figure (3) show that participants in this study, whom specialized in information technology, are 41.4% and specialized in Software Engineering 58.6%.

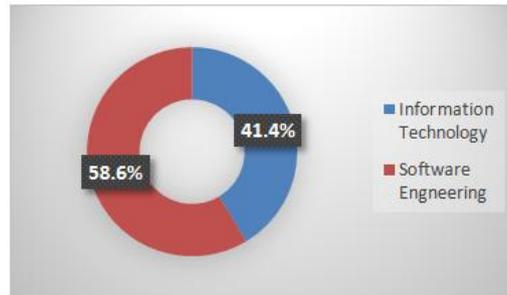
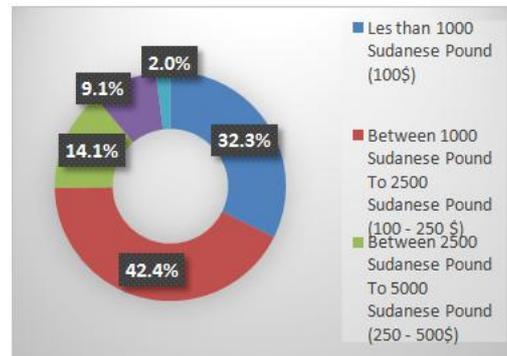


Figure (3)

Variable of family monthly income

The data format (4) describes low level of monthly income of the students families, as the rate of families whose income is less than 1,000 pounds (\$ 100) is 32.2%, while families whose income between 1,000 pounds to 2500 pounds (100 - \$ 250) accounted for 42.2 %, and families whose income is 2,500 pounds to 5,000 pounds (250-500 &) their percentage reached to 14.1%, while the lowest rate was 9.1%, which is for families with a monthly income of more than 5,000 pounds (500 &), this means that 74.7% of families students monthly income is less than 2,500 pounds (\$ 250) and only 23% monthly income of more than that. From the above mentioned ratios we conclude that there are a large number of students do not have the ability to provide the prerequisites which help them to complete their studies in highest level of productivity, such as the purchase of personal computers.

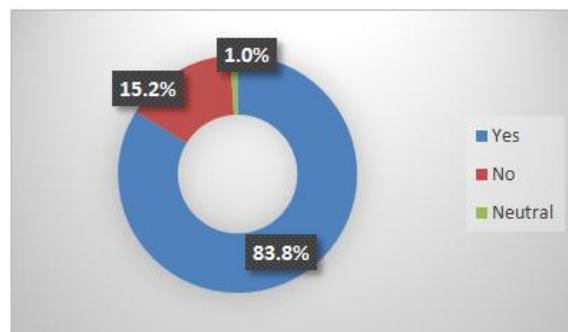


Figure(4)

3.5.- Variable of information

3.5.1- The First Question: Do you have entered IT specialization you desire?

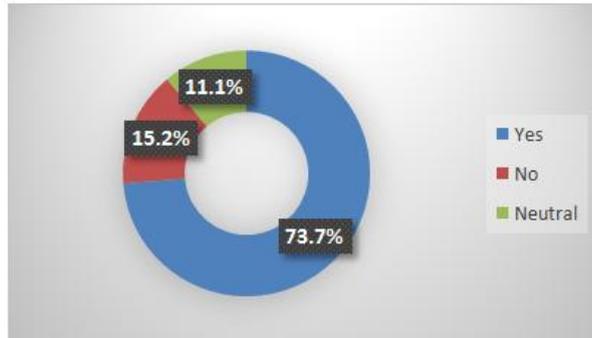
From Figure 5, we find that the ratio of the answer to (yes) is 83.8%, and the ratio of the answer to (not) stood at 15.2%, while the ratio of the answer to (neutral) 1.0%. We therefore conclude that the majority of Sudanese families to leave their children free to choose university specialization and this contribute in students' comprehend their specialization.



Figure(5)

3.5.2- Second Question: Do you expect that you comprehended the concept of IT?

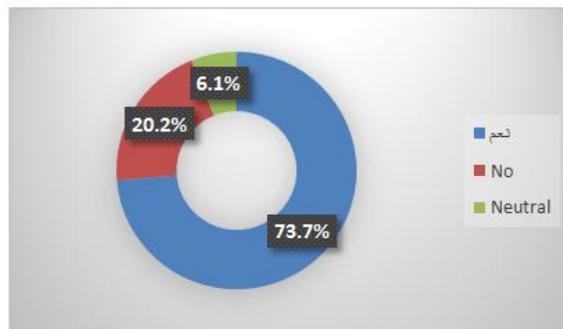
The figure (6) shows that 73.7% of students their answers (yes), and 15.2% their answers (no), and 11.1% answered (neutral), and this means that 26.3% of the students is assimilated to the concept of technology information and the largest percentage of them assimilated to this concept.



Figure(6)

3.5.3-Third Question: Did you use the means of information technology in your life?

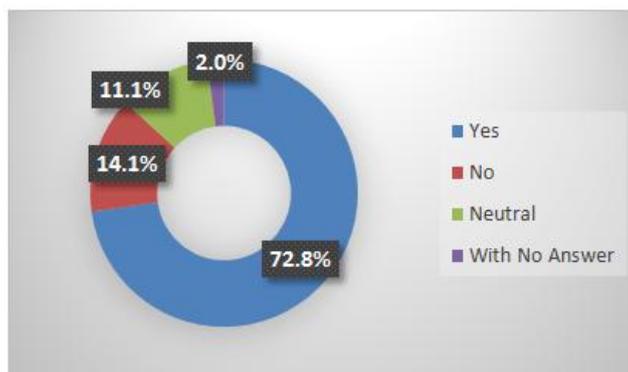
The data in figure (7) describes that 73.7% of the students used the means of information technology, while 20.2% of the students did not use these means. Comparing the results of the second question with the results of this question, we conclude that the main reason for the lack of comprehending the concept of information technology is the lack of the use of information technology.



Figure(7)

3.5.4- Fourth Question: Do you consider yourself to master the use and knowledge of information technology?

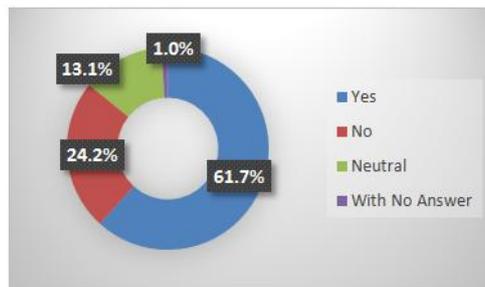
From (Figure 8) we find that 72.8% of the students consider themselves that they know how to use and of information technology and its knowledge, and the percentage of 25.2% of the students consider themselves they are not proficient in the use and knowledge of information technology. so we conclude that students who are proficient in the use of information technology because they used the means of information technology who are comprehended the concept of information technology, while those who do not know how to use them they did not use them before and thus is comprehended to this concept.



Figure(8)

3.5.5- The Fifth Question: Is the environment in which they live well suited for the use of information technology

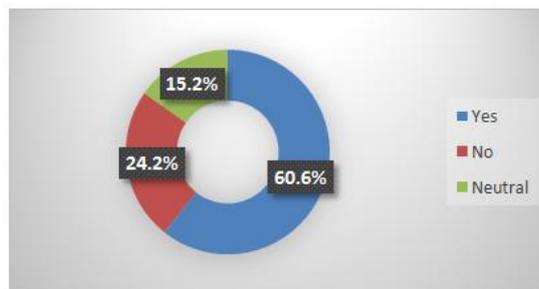
From figure (9) there are 61.7% of the students are finding that the environment in which they live well suited for the use of information technology, while 37.3% are finding that the environment is not suited. This is due to the nature of Sudanese society and that many of the students live in regions where the means of information technology less. Comparing student ratios non-assimilated to the concept of information technology and are 26.3% with students who did not use means of information technology in their lives ratios They 26.3% and those who consider themselves not proficient in the use of this technology and are 25.2%, we find that the reason was due to the lack of the environment in which they live for the use of information technology.



Figure(9)

3.5.6- Sixth Question: Is the infrastructure of the college suited you to learn and comprehend information technology

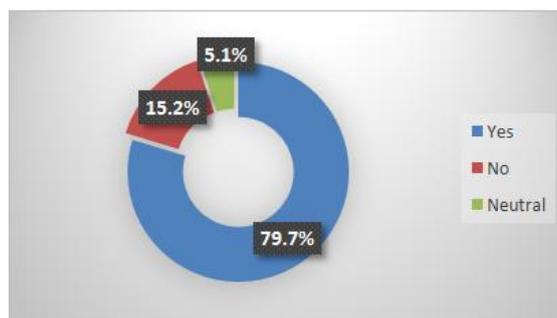
The figure shows (10) that 60.6% of the students find that the infrastructure of the Faculty suited, while 39.4% of the students find that the infrastructure of the college unprepared. It is therefore concluded that it finds the environment suited for the use of information technology believe that the college suited to learn and comprehend information technology with only a 1.0% difference, while finding that the environment is suited for the use of information technology find that the infrastructure of the college unprepared congruent ratio which is 26.3%.



Figure(10)

3.5.7.- Seventh Question: Do you prefer the education of information technology or the traditional education

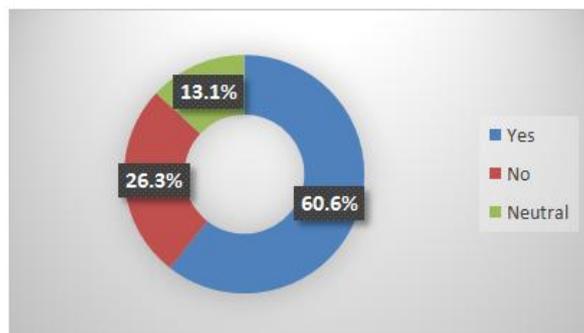
Figure (11) shows students ratio to preferred education by IT 79.8% and this shows students' desire to progress in this area. While the percentage of students in favor of the non-education through information technology on traditional education 20.3%.



Figure(11)

3.5.8.- Question Eight: Do you see that there are problems facing Sudanese student to study IT

The figure shows (12) to 60.6% of the of students are finding that there are problems facing Sudanese student to study information technology, and that 39.4% of the students do not find any problems facing Sudanese student to study information technology. Find a match in the ratios between students who find that the infrastructure of the Faculty suited to learn and absorb information technology and those who believe that there are problems Sudanese student to study information technology faces as it accounted for 60.6%, and this shows that the problem is not in the infrastructure of the Faculty of creating, but the problem lies in other causes may be due to the surrounding environment for students and families' monthly low-income.



Figure(12)

IV. The Results

Through the results of this study, we can conclude the following:

1. Since most of the students' ages range is between (15-20) this shows that most of them are pursuing their education in sequence until they arrive at university education by 85.9% and 14.1% of the students their education did not continue.
2. Sudanese families monthly income is low of in general, as the ratio of students who have a monthly income of less than 2,500 pounds, the families of (\$ 250) to 74.7%, which is a high percentage, while families whose monthly income is more than that amounted to only 23%.
3. The majority of students chose the University specialization as desired their ratio is 83.8%, while those who did not choose their specialization desire reached 16.2%.
4. There is considerable need to improve the level of information technology and its use in colleges and universities and the surrounding environment, as the ratio of students assimilated to the concept of information technology amounted to 73.7%, while the ratio of students were non-assimilated this concept to 26.3%, which is not a few percent.
5. Students who use information technology in their daily lives are more comprehension to the concept of information technology, accounting for 73.7%, while the students who did not use the means of information technology in their daily lives have not come to grips with the concept of information technology are accounting for 26.3%.
6. Students who are proficient use and know information technology have an earlier use of technology means and be assimilated to this concept, as students who are proficient in the use and knowledge of information technology 72.7%, while the students who did not use it before are 25.2% of total.
7. There is considerable need to improve the environment that surrounds particularly in the regions of students, since students who find that the environment around them is well suited for the use of information technology 37.3% of total.
8. There is a need to improve the infrastructure for colleges and universities to be more convenient to learn and absorb information technology, as students who find that the college is well suited for IT 39.4%.
9. Sudanese students have a passion and high capacities to develop and improve their level of education, but their environment is not helping, since student supports learning information technology rather than traditional education 79.8%, and students who find that there are problems facing Sudanese student to study information technology 60.6%.

V. The Recommendations

The study recommended the following:

1. A review of the curriculum to the stage of the pre-university level and especially information technology curriculum.
2. Rehabilitation computer labs to secondary stage and intensify practical programs for it.
3. The need to give training sessions for the use of information technology.

4. Applying E-government in the Republic of Sudan, and this leads to a quantum leap in the evolution of Sudanese society, increasing awareness of the concept of information technology.
5. The development of infrastructure for university colleges in Sudan, and the adoption of electronic procedures for transactions of academic and administrative especially basic ones (registration, results, certificates).

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