THE IMPACT OF CLOUD COMPUTING ON THE QUALITY OF E- LEARNING AT TABUK UNIVERSITY

أثر تطبيق الحوسبة السحابية على جودة التعليم الالكتروني بجامعة تبوك

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ABSTRACT

Cloud computing is an advanced technology that relies on the transfer of processing and storage space for the computer to the so-called cloud, a server device accessed via the Internet , to transform it programs from products to services and the problem of study through the researcher's observation For the low success rate in mathematics course (2) for the students of the preparatory year at the University of Tabuk , despite the importance of the decision and the ensuing decisions in the student's study plan, this study aims to introduce the concept of cloud computing and clarify the benefits of employing cloud computing in the educational process and the Learn the impact of cloud computing on the quality of E-learning in enhancing the cognitive and skill aspects of the students of the preparatory year in the Department of Mathematics and the results of the study proved the following: Using the cloud to help increase the academic achievement of the students of the preparatory year in the department Mathematics this is reflected in the difference between the results of the tribal and other tests where the degree of the tribal test was 10.77% the degree of the dimensional test 83.10% and the extent of the interaction of the students with the use of T1-nsipre purification and the computational cloud contributes to the development of the skills side of the students of the preparatory year Mathematics in the difference between the results of the

tribal and other tests where the degree of the tribal test 43.50% the degree of the dimensional test 96.50% and the extent of the interaction of students with the Technology of cloud computing

الملخص

تعد الحوسبة السحابية تكنولوجيا متطورة تعتمد على نقل المعالجة ومساحة التخزين الخاصة بالحاسوب إلى ما يسمى السحابة (Cloud) وهي جهاز خادم يتم الوصول إليه عن طريق الإنترنت، لتتحول برامج تكنولوجيا المعلومات من منتجات إلى خدمات و تمثلت مشكلة الدراسة من خلال ملاحظة الباحثة لانخفاض نسبة النجاح في مقرر رياضيات (2) لطلاب السنة التحضيرية بجامعة تبوك بالرغم من أهمية المقرر وما يترتب عليه من مقررات أخرى في خطة الطالب الدراسية و تهدف هذه الدراسة الى التعريف بمفهوم الحوسبة السحابية وتوضيح فوائد توظيف الحوسبة السحابية في العملية التعليمية والتعرف على اثر تطبيق الحوسبة السحابية على جودة التعليم الالكتروني في تعزيز الجانب المعرفي والجانب المهارى لطالبات السنة التحضيرية بقسم الرياضيات واثبتت نتائج الدراسة الأتي : إستخدام السحابة الحوسبية يساعد على زيادة التحصيل الأكاديمي لدى طالبات السنة التحضيرية بقسم الرياضيات ويظهر ذلك في الفرق بين نتائج الاختبارين القبلي والبعدي حيث كانت درجة الاختبار القبلي 10.77% أما درجة الاختبار البعدي 83.10% وبين مدى تفاعل الطالبات مع إستخدام تنقية nsipre–T1 و السحابة الحوسبية يساهم في تنمية الجانب المهارى لدى طالبات السنة التحضيرية بقسم الرياضيات في الفرق بين نتائج الاختبارين القبلي والبعدي حيث كانت درجة الاختبار القبلي 43.50% أما درجة الاختبار البعدي 96.50% وبين مدى تفاعل الطالبات مع تقنية الحوسبة السحابية

Keywords: Cloud Computing , Quality of E-learning

الكلمات المفتاحية : الحوسبة السحابية ، جودة التعليم الالكتروني

1.**Introduction** :

Cloud computing is a sophisticated technology that relations on the transfer of processing and storage space of the computer to the so-called cloud, a server that is accessed through the Internet, transforming IT programs from products to services. Computing, applications and even operating systems cloud have provided infrastructure, services, and software through a network. This network offers attractive benefits to higher education institutions with the ability to reduce ICT costs through virtualizing capital expenditures that install more than one operating system (Windows-Mac-Linux-Others) in a virtual environment within the current operating system to

enable experience system like the rest of the programs are browsing at any time.

2. Main text :

2.2 **Purposes of Study** : This research aims at introducing the concept of cloud computing and clarifying the benefits of employing cloud computing in the educational process and understanding the effect of applying cloud computing on the quality of E-learning in enhancing the knowledge and the skilled side of the preliminary students in a mathematics department.

2.2 **Methodology of Study**: To achieve the research objectives, the detailed approach and the semi- experimental approach are used to suit the current research objectives.

2.3 **Significance of Study**: The importance of this research in several parts:

(I) Theoretical part:

- This study corresponds with the attention of officials at the   Ministry of Education in the Kingdom of Saudi Arabia E - training a new challenge For university training.
- The scarcity of the Arab study, which dealt with the subject of cloud computing and its applications in the field of university education.

(II) Applied part:

- Clarification of applications of cloud computing in university education and the possibility of benefiting from its services.
- The use of study may contribute to increasing the academic achievement of the students of the preparatory year in the mathematics department.
- The results of this study may help to encourage researchers to conduct further studies in this field.
  - ➢ **Population of Study** : Students of the preparatory year, Mathematics Department, Faculty of Science, Tabuk University 969 student
  - ➢ **Sample of Study**: A group of students in the preparatory year for summer separation recorders in 1439/1440 AH
  - ➢ **Hypotheses of Stud**y :
- There were no statistically significant differences at level (α = 0.05%) between the intermediate scores of the pre-test and the post-test cognitive achievement
- There were no statistically significant differences at the level of (α = 0.05%) between the intermediate scores of the pre-test and the post-skill.
  - ➢ **Terminology of Study** :
     Cloud Computing: Know both Hussein and Sumaidai (2012): "A new model is to pay as much as use to access hardware and software resources through the Internet flexibly and allow companies to reduce costs and increase performance."
- The US National Institute of Standards and Technology defines cloud computing as a model for enabling end-to-end network access and sharing a range of computing resources (server

networks, storage units, applications and services) that can be quickly deployed and delivered with an effort by management or Interaction with the service provider "(Mell & Grance , 2011).

- The E-learning: the delivery of learning and education program through electronic means and includes E-learning to use a computer or any other electronic device to provide training or educational materials.

- Al-Awaid and Al-Hamed (1424H) define E-learning as an education that aims to create a rich interactive environment with computer-based applications and enables students to access learning resources anytime, anywhere.

- An educational system to provide educational or training programs for learners or trainees at anytime and anywhere to useinteractive information and communication technologies to offer a multi-source interactive learning/learning environment synchronously or asynchronously.

3. **General Concepts:** The era in which we live with our various needs is characterized by rapid progress. Today, science is witnessing a clear development in the various scientific and technical fields. Superior technology has imposed itself in multiple areas of life. Technological progress has led to the emergence of new methods of education. Techniques are based on the use of technological innovations to achieve the required knowledge and seek new ways, systems, models and teaching aids to address many challenges at the global level, including increased demand for education, a shortage of educational institutions and an increase in the amount of information in all branches of knowledge for recent trends in mathematics education.

3.1 The Concept of Cloud Computing : Refers to the on-demand computer resources and systems available on the network that can provide several integrated computer services without local resources to facilitate the user. These resources include space for data storage, backup and self- synchronization and consists of the capabilities of software processing and scheduling of tasks and payment of mail Electronic and remote printing. When connected, the user can control these resources with a simple software interface that simplifies and ignores many internal details and processes [1] The concept of cloud computing has been defined as "a technology that relies on the transfer of processing and storage space of the computer to the so-called cloud, a server that is accessed through the Internet. This turns technology programs provide large storage space for users and it provides some programs as services Users rely on the possibilities provided by Web technologies 2.0 [2]. This can be illustrated by Figure (1) The idea of cloud computing Cloud Computing :

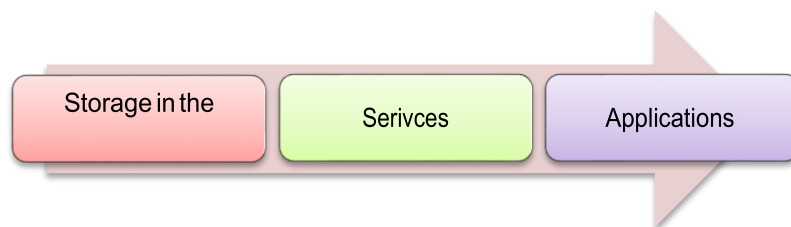| Storage in the | Serivces | Applications |

Figure (1) : Called cloud computing or cloud computing C. C

3.2 Components of cloud computing [3] Cloud Computing :

- **Applications** : Are programs and services that can be occupied by the client in the cloud, and with service Software As a Service the maintenance and development burden of the user has been reduced .

- **Client** : Is the user, who uses his equipment (whether mobile or computer or the iPad to benefit from the service, and may have a system that supports the cloud or Browser is used only.

- **Infrastructure** : Is the cloud infrastructure, which is provided as a service Infrastructure as a service . 4 . Platform: Is the platform you use in the cloud, such as Python Django, Java Google Web Toolkit In Google .

- **Service** : Is the service you use on the cloud, and the subject is more concerned with the term Software as a Service , Is the process of converting computer products into services .
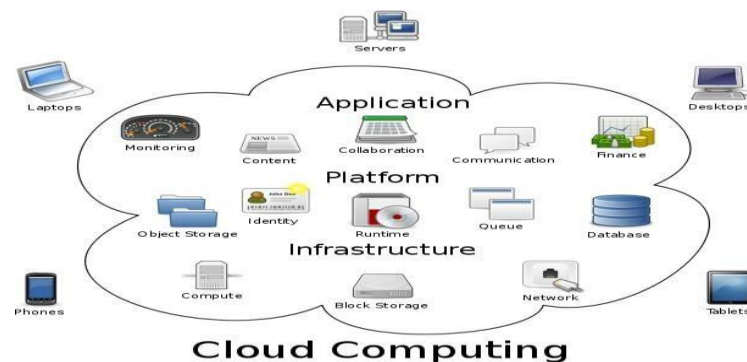

Figure (2)

3.4 Cloud Computing Models:

public cloud: Are available to the general public and are commercially based and are usually owned by companies selling cloud services .

Private Cloud : They are private networks for certain entities that provide full data control, security and data quality.

2 . Common Cloud: many organizations or ministries who share a similar interest in service share Cloud infrastructure.

3. Hybrid cloud: Cloud infrastructure has a vehicle of two or more clouds (private, community, or public) that are associated with standard or particular technology enabling it to allow data or applications to be transferred from one cloud to another.

Benefits of employing cloud computing in the learning process: Cloud computing is one of the most modern forms of virtualization software widely used in the business, service and e-government sectors in most of the world. Recently it has been introduced as an idea for use in the fields of distance learning and E-learning, Cloud (Computing It is no longer just a theoretical concept but turned into a concrete application we see in a number of communal services in the web, especially in the field of e-learning, for example, it has moved.

Building tests of software that can be downloaded to the device to services on the Internet does not require any operation Special software to take advantage of, site classmarker.com) And service (quiz-school) For example, they have taken advantage of cloud computing capabilities to offer the test hosting and evaluation services automatically for free or at a nominal price. The sites offer the possibility of running tests of various types such as complete the vacuum, Multiple choice, correct and error, etc., with the potential to display questions randomly or in a particular order, and publish the test by e-mail or web pages.

Provided Google A dedicated system in scheduling the course under the name (Cloud Course) The system allows teachers to create and follow up learning activities, schedule, manage and approve the queue, in addition to advanced features such as table synchronization with compatible systems, room information service and finally user information service [4] .

Cloud computing fosters collaboration between learners, teachers, and others in academia.

It is easy for the teacher to propose modifications by accessing the student file in the cloud, save his comments, and notify the student through the system.

Benefit from the vast infrastructure provided by the cloud services to carry out scientific tests and experiments.

3.5 Characteristics of Cloud Computing:
1 User-centered: Once the user has connected to the cloud, what is stored there becomes documents, messages, images, applications, or whatever the user. It is not only for the user but also for sharing with others.
2 With a central mission: Instead of focusing on what can be done and what can be done, the focus is on what the user needs to do, and how the application can do it for him.
3 Powerful : It connects hundreds or thousands of computers in the cloud.
4 Access : Data is stored in the cloud and users can instantly recover more information from multiple repositories and not just one source of data as was the case with computers.
5 Smart: With all the data stored on various machines in the cloud can be extracted and analyzed data to access this information intelligently .

Programmed : Many of the necessary tasks with cloud computing must be automated, for example, to protect the integrity and storage of data on one computer in the cloud must be copied on other machines in the cloud if this computer has moved to Outside the grid, the cloud automatically reprograms from that computer to another new equipment in the cloud.

3.6 Models of Cloud Services :

Service Google Cloud Drive : One of the recent cloud services of Google, which has become a global echo and extensive applications by researchers and information institutions. This service appeared in April of this year 2012 , Which allows the user to store the various files on the main servers in Google.

Features Google drive: Google Cloud Drive has many features and features:

2   It is a cloud service belonging to a large international company that has a reputation in the field of the Internet through the global community.

3   Google provides the user with the ability to store their files through the availability of storage capacity in Google drive this storage capacity reaches 15th Free Gigabyte Available to the beneficiary.

4   The great power of the company's servers Google which ensures the possibility of uploading user files on them.

5   Service Integration Google drive With other services Google , Where available services can be easily navigated.

6   Provides many services such as storage, sharing, downloading, editing,and saving of files and more.

7   Features include automatic spell checking, Correcting all the errors that are available in the list.

8   Updates and features are added every period on Google drive .

9   The possibility of sharing work by forming groups on Google drive .

10   Option to load Google drives On many type of hardware computers, phones, tablets.

11   The possibility of cloud storage of any kind of files and access to them at any time and place.

12   There are multiple features such as automatic file preservation and software support such as Photoshop and PowerPoint .

3.7 Service Drop Box : is an external site hosting files and has many benefits and advantages. It provides a user-specific cloud service on the Internet that allows it to freely store data and also synchronize its various files between different devices and various modern media. When you install a program (Drop Box) The process of real storage on a remote server symbolizes (cloud) allows the user to add and modify and change the files through the media available to him and that enables him to use the program Drop Box.

4   **Advantages of using a service Drop Box Cloud** : This service offers many advantages to the beneficiaries:

1.   Enables the user to view and browse his files and modified from which place In any geographical area provided that the Internet service is available.

2.   Save files for fear of loss, loss or damage Of personal devices and thus can be retrieved at any time .

3.   In order to share files among people The relationship and ease of use even as the working environments are different and can send a link to files on the mail of people Concerned .

4.   If you run out of storage space on a user's computer, This program will quickly send a link

to files on the mail of the persons concerned .

5. Allows to upload and store various types of documents, images and other applications Files
6. Easy The process of taking pictures and synchronizing with the program (Drop Box) At the same moment .
7. Copy or paste the image links directly into the clipboard.
8. Review Office files and documents pdf And others without the need for any additional software.
9. It supports Arabic language files and other languages.
10. Synchronize audio and video files directly with (Drop Box) and also operated.
11. The location of Drop Box the user has a free space of 2 This space can be increased by a monthly fee 50 Giga or 100 Giga.
12. Opium devices allow the user the freedom to create a private secret code for additional confidentiality.
13. Upload files to your smartphone and run them directly without the need of the Internet.

Google drive: The service offered by the company provides more storage space than other services can be used by Space up to 15 kb as Allows you to process And modify your files online without having to have the modification software installed on your computer. This application is utilized Decrypt and transfer compressed files from computer to iPad :

I zip Application : In lectures pressure course for ease of transmission processes for students and jaw.

5program Explain Everything : Is an easy-to-use tool that gives you an interactive whiteboard that enables you to do the program can be defined on iPhone and iPad There is a free version and a paid version and is used in this research applied to explain sports and sports equations
Program Features :

1. Action Animation and Writing Handles . .
2. Export all media files and share them as movies
3. Add videos / photos, presentations and audio recordings .
4. The possibility of moving objects from one place to another .
5. Procedures of Research:

Study Tools: The researcher used a toolkit to answer research hypotheses such as :

Statistical analysis Spss : To find the statistical differences between the two averages Pre-test and post-test cognitive achievement. : Machine T1-nsipre To measure the statistical differences between the two averages Pre - and post - test for the empirical test of the theoretical side .

Answer the First question : There were no statistically significant differences at level ($\alpha = 0.05\%$) between intermediate scores Pre-test and post-test cognitive achievement :
One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
First	65	7.6462	3.42979	0.42541
Second	65	16.4769	4.17623	.51800

	Test Value = 05					
	t	df	Si. G (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
First	6.220	64	.000	2.64615	1.7963	3.4960
Second	22.156	64	.000	11.47692	10.4421	12.5117

One-Sample Test

There is a statistically significant mean for the pre-test as well as for the post-test and the result has been highly significant now p = 0.000 .

Distribution of pre - and post - test scores on female sample				
The stairs of	less than 12	19-13	25-20	The success rate
Tribal Test	58	7	0	10.77%
Post-test	11	37	17	83.10%
Total	65			

The success rate

Pre-test

Post-test

89%

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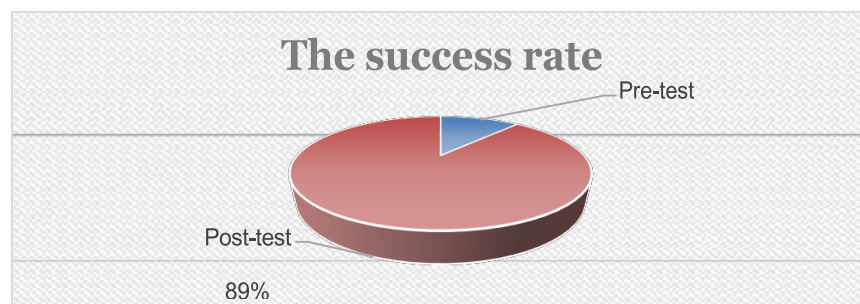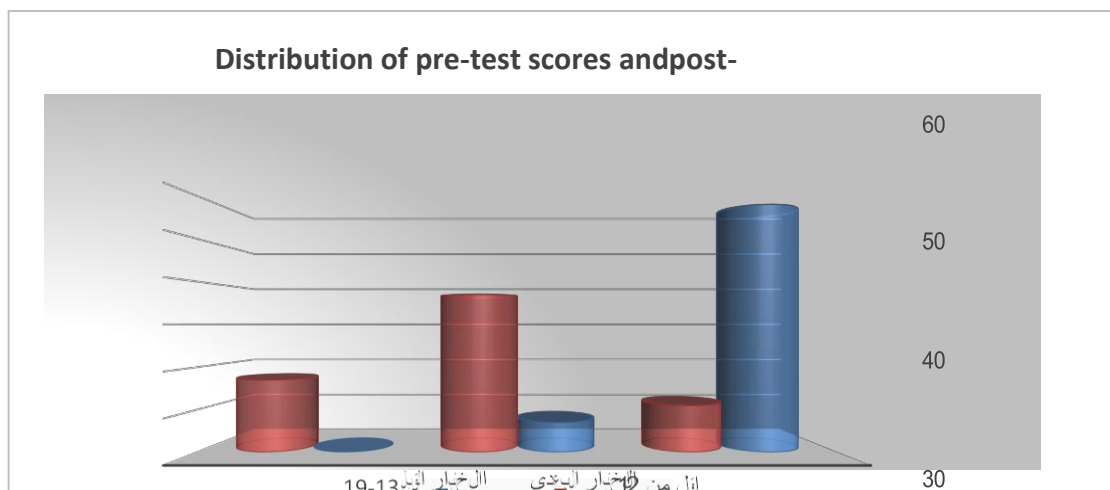
From the analysis of the result of the tribal and post-test of the students, the research found significant differences at the level of ($\alpha = 0.05\%$) between intermediate scores Pre-test and post-test cognitive achievement

Answer the second question:

There are no statistically significant differences at the level ($\alpha = 0.05\%$) between the intermediate scores of the pre-test and the post-skill.To answer this question, the researcher used a technique T1- nsipre Explanation of the application of the graph: An application that enables the drawing of functions, equations (rectum, parabola, circle, ellipse, extra cutting, and conical sections), parametric and polar functions,

Summary of search results:

▪ There are significant differences at the level of $\alpha = 0.05\%$ between the intermediate scores of the pre-test and the post-test cognitive achievement.

▪ There are significant differences at the level of $\alpha = 0.05\%$ between the intermediate scores of the pre-test and the post-skill.

▪ The use of computer cloud helps to increase the academic achievement of students of the preparatory year in the mathematics department.

Use of purification T1-nsipre With the computer cloud contributes to the development of the skilled side of the students of the preparatory yearin the Department of Mathematics

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