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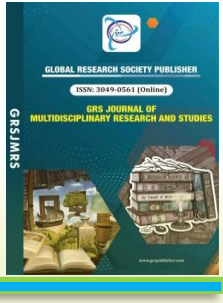

An effectual analysis of cloud based ERP Technology during Covid on Digital Learning

Dr. Vijaya Karthik S V
Software Engineer, Warsaw, Poland.

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Corresponding Author:
Dr. Vijaya Karthik S V

Abstract: The rationale of this current investigation is to explore the efficacy of cloud based ERP technology in digital learning and especially at the time of Covid pandemic. This research illustrate a casing work that the selecting academic and non-academic work components in the educational institutions, and with the relevant authorities the data be gathered and resulted. Cloud based ERP technology in digital learning became a new paradigm for the educational sector, with multiple advantages in both sides (academic and non-academic). Some of the primary institutions currently assisting this cloud based ERP can be sorted out and the study samples can be selected from those institutions. Overall 50 samples will be selected in the stratified sampling method and the study can be formulated with quantitative analysis of data. At last the effectiveness of cloud based ERP technology during Covid on digital learning can be highlighted with the correlated work by the investigator.

Keywords: *Covid, digital learning, cloud based ERP, technology, e-learning and education.,*

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Introduction

At present in this twenty first century COVID-19 is the prime pandemic and the challenge due to the scenario, the world struggles with in all aspects, especially education and in every aspect of human life. Concerning the educational domain, more than 1700 students are undergoing trouble in accessing their education with this pandemic [1]. Online based teaching and learning systems became very trendy in this pandemic time; also this is the only option for this occasion, so that it is universally accepted and undertaken by the education sector worldwide. But these facilities need the internet and some shared computing resources so that it facilitates a lot of digital learning for this Covid pandemic situation. The cloud based ERP technology can be accessed by the educational sector to effectively use the shared computing resources through the internet to make digital learning successful at the moment in time of Covid-19. This system is also termed as SaaS (Software as a Service). This Cloud based ERP technology provides educationalists (users) with the competence to create and store the relevant data. Each part of the stored information or data can be retrieved systematically by the usage of the internet through a digital device [2]. Cloud based ERP model technology has an impact on the educational sector and its integration in teaching and learning division has unlocked innovation in learning and teaching opportunities especially in the tenure of Covid outbreak.

Understanding Cloud Based ERP

The concept cloud computing has become further admired in digital education and it is bound to revolutionaries the process of education. The National Institute of Standards and Technology (NIST) has defined that on demand self-service, location independent resource pooling, broad network access, and so on are some of the traits of cloud computing model [3]. Ultimately there are three representations of cloud computing, indicated as Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) [4]. ERP is packaged software, which combines all information about the undertaken system and supply chain into one database. Cloud based ERP technology is a relevance policy that integrates entire serviceable units in an educational institution in a cooperative manner that resembles data processing in each unit. The above mentioned software in the introduction section made this application very accessible for digital education. There are several different definitions of cloud computing ERP by various experts. Cloud Computing ERP has been frequently defined as “a model for enabling ever-present, convenient, on-demand network access to a communal pool of configurable computing resources like networks, servers, storage, applications, and services that can be unrestricted with institution effort” [5]. Digital learning based on cloud computing ERP is the most modern model that has been extensively approved in the education field especially in digital learning. This advanced technology in digital learning is marginalized by an internet based learning system that uses know-how in education to develop, accomplish, make possible, manage, enhance learning [6].

Literature Review

Navish Samyan and Pierre Olivier St Flour (2021) addressed the challenges and opportunities of the cloud computing ERP in digital

learning. The author's focal point is on the collision of cloud based technology on digital learning during the COVID-19 pandemic. A bibliometric investigation was used to categorize the journals that in print articles related to cloud computing and digital learning from the period 2008 to 2021. The research result illustrates the key aspects of how technology has been adapted to this new global conflict and their rank of efficiency that can help policy-makers in the future.

Ayatulloh et al (2021) reported that on studying educational background with cloud based ERP technique, student satisfaction on digital education reported with a better result. In the meantime, learner contentment has a significant impact on the net benefit. This research report also demonstrates that the adaptability and effortlessness of obtaining excellence in sequence, especially in terms of flexibility, expediency, and interactive learning, is a critical factor in satisfying the mesh benefits of learners in attaining learning outcomes in learner satisfaction. The results of this research indicate the dominance of the quality of information produced by cloud based ERP technique in digital learning. In other words, the learning preparations and stream in the cloud based ERP technique are necessary workings so that learners can realize the specific learning outcomes.

Amit et al (2021) concluded that in the Indian context, the cloud computing adaptation in the higher education sector (based on digital learning) comprehensively overcomes the vacuum section in higher digital education in India. Due to Covid outbreak this investigation and its results have significance, and facilitate digital learning that includes in the remote area.

Thanh et al (2013) reported that considering the objectives of their investigation, to move toward the relevant perception of multidimensional aspects, exemplify the confrontation and compensation of cloud based ERP on digital education that apply to any educational institutions in Vietnam. To conclude that, the researchers concluded that, this cloud based ERP model for digital education optimizes the applications for universities or educational institutions, and appreciating teaching, research, learning, and management in modern education, ultimately it also reduces the cost.

Lalit Garg et al (2021) reported that PaaS makes available computing display space and allows end users to expand, lope and manage submission software. Further IaaS offers computing, storage, networking resources, and system software including OS with security and recovery features. This system reduces the burden to admin and maintains the service as accurate in this Covid pandemic.

Loom of the Study

This investigation focuses on analysis of cloud based ERP technological digital learning on Covid pandemic. The scope of this current investigation is limited to higher education, especially carried out only in Indian central, state and deemed universities. The research purpose is to find the effectiveness of cloud based ERP technology for digital learning, and it can be satisfied by collecting data in a comprehensive approach. The integrated framework is dependent on software packages accessed in the universities that seem to be Multi-tenant SaaS, Single-tenant SaaS, Public cloud, Private cloud and Hybrid ERP.

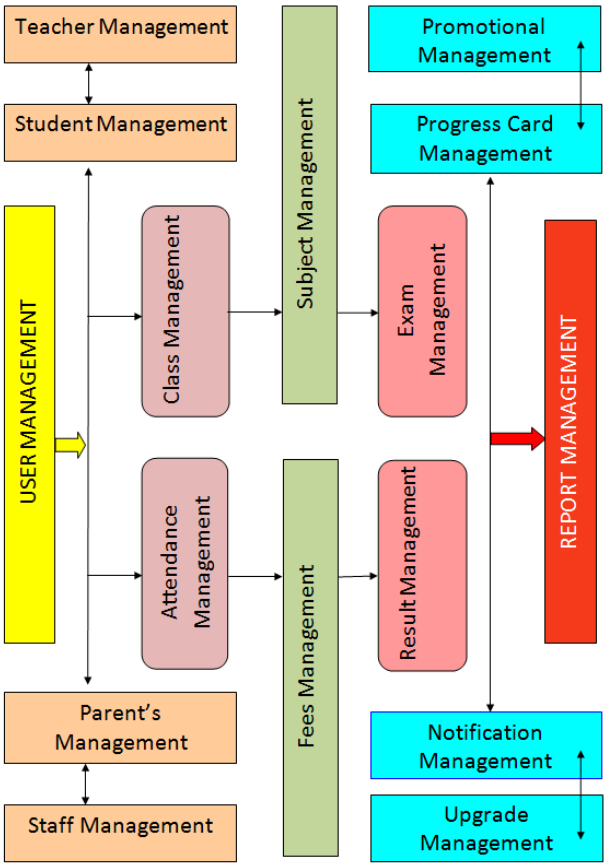

Figure: 1 Cloud Based ERP Management Technique in Digital Medium

Cloud based ERP technology on education

The effectiveness of an educational system in educational institutions depends, when data can be accessed rapidly in avoiding any type of interruption. For the enhancement of data accessibility educational institutions can perform with cloud based ERP technology, by this technology there is no interception in the accessibility of data that is required for spontaneously. The required information can be easily accessed with any devices with an uninterested connectivity, with these the workflow is prolonged smoothly. Also if there is any sort of issues on the management side it can be resolved with the unified platform system. Moreover, information can be shared from one department to another. This unified platform results with data accuracy, ERP eliminates manual entries in which human error occurs. To safeguard the available information against misuse this cloud based ERP technology has role based access. The login credentials are engendered on the basis of institutional norms means every authority has chances to access through regulated OTP which enhance the data security.

The CCA forecast, especially in the Indian context, reveals that SaaS, PaaS and IaaS model determination symbolize contributing the total market revenue, and it would be USD 3048 by 2020 end. The benefits of Cloud computing ERP technology in education approaching the Indian HEIs to take on whichever applications, especially cloud computing SaaS viz., Google's Gmail, Google calendar, Zoom Platform and Google meet and further the educational institutions occupy the learning Management System (LMS) to facilitate course delivery and assessment in the covid pandemic satiation, there by increased to engage the learners in online mode [1].

Role of Authorities in Cloud based ERP technologies

The authorities have been cracked into two domains, academic and non-academic authorities. Academic includes teaching faculties and learners perhaps non-academic denotes the remaining authority that be discussed below in detail. In the domain of non-academicians, administrators are played a key role to maintain the quality of learning. They monitored quality of instruction, enforce against misuse of technology, and determine the cost effectiveness and searching potential solutions for key problems. Educationalist role is with communication, networking, and content- knowledge disseminator with digital instruction with a greater responsibility. Software admin sustain with delegate team task and clarify responsibilities, develop e-learning courses, maintain accurate records, provide technical support, collaborate with other departments, fine tune the online training strategy, provide ongoing feedback and maintain the learning management system. Teaching faculties are tied up with planning e content for learners, preparing digital learning course content, preparing soft and hard copies of learning materials, authority for question papers, valuation and interpreting marks and ranking for students. They may direct every program, hire and supervise staff, manage budgets, make resolution that influence academic community. At last learners are the future resources they should be with entire things that happenings in the digital education at covid pandemic, also they can realize the traditional academic and non-academic activities that happened before covid, with these they can support the undertaken topic with their valid answers.

Objectives of the Study

1. To appreciate digital learning in an education system that collectively accesses the integral part of curriculum and syllabus for all learners.
2. To access ultimate online tools in the education sector to enhance cloud based ERP at the tenure of pandemic.
3. To enhance and expand the cloud based technological support to satisfy the current educational needs and multi dimensional expectation of the learners.
4. To improve cloud based ERP techniques for individuals associated with the educational sector.
5. To provide successful academic and non-academic service activities that related to educational institutions through cloud based ERP technology.

Scope of the Study

1. To enhance the excellence of cloud based ERP technology in digital learning at pandemic time
2. Meet the learning requirement of students in the domain of cloud based ERP technology in digital learning.
3. To make progress in the user-accessibility, efficiency, online interaction and time flexibility in the educational process.
4. To achieve upward mobility in the domain of cloud based ERP technology in digital learning.

Research Skeletons

Samples

This research framework section concentrates on the procedure to collect and retrieve the facts and information in order to achieve the objectives of the topic assumed. Quantitative process of research was adopted in this study and the implementation of questions as queries based on decisions are gathered from administrators, educationalists, decision makers, teaching faculties, administrative staff and learners. The data collected serves as a thoroughfare to support the decision process in a hierarchy manner. As a collection, 50 respondents participated in the survey including students. The split up of samples can be displayed below in the format of pie chart.

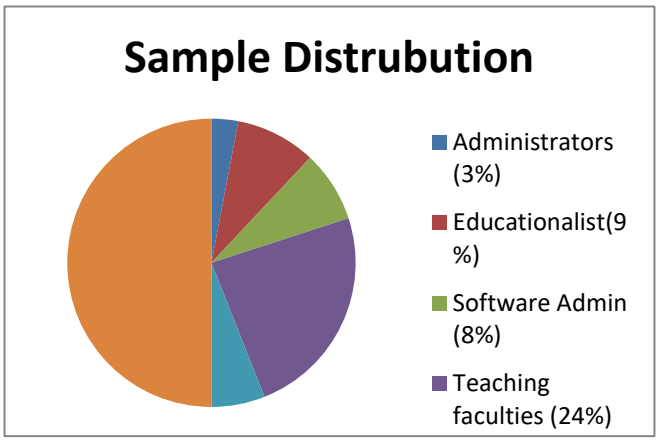

Figure: 2 Representation of Sample Distribution

Data Collection

A questionnaire was framed (a combination of academic and non-academic) and both of them were undertaken for the study purpose for the respective set of individuals. Academic area includes the traits consisting of curriculum exposure, syllabus, teaching, teaching methods, digital environment time management and so on. Non-academic questions deal with students and staff attendance, syllabus coverage, exams, curricular activities and co-curricular activities, valuations, progress record, reports, parent's teachers meet infrastructure, transport, physical activities and health related activities etc. Therefore the attitude and performance cloud based ERP technique can influence the overall entities of the educational related activities can be collected in the form of data and it can be tabulated for organizational performance at the period of covid.

Methodological Aspects

Since this study follows a quantitative path, by collecting data through online (self administered questionnaires) from two sectors those who are currently engaged in various educational institutions. The questionnaire that relates to academic purpose has undergone pilot study for its purposes. Then the collected data was analyzed with the aid of Statistical Package for Social Science to test the revealed hypotheses below.

Hypotheses

(H_1)There exists a significant difference between the non-academic work undertaken in the educational sector assisting with cloud based ERP technology before and after covid.

(H_2)There exists a significant influence of academic activities on digital learning based on cloud based ERP technique before and after covid.

Table: 1 Summary of Mean, Median, Standard Deviation and variance of cloud based ERP technology at Non-academic phase

Cloud Based ERP	Group	Assessment	N	Mean	Median	Standard Deviation	Variance	Calculated t' value
	Non-academic	Pre- Covid	50	22.72	22.95	3.85	8.11	0.41@
		Post- Covid	50	47.42	49.00	4.71	16.75	14.21**

Table: 2 Summary of Mean, Median, Standard Deviation and variance of cloud based ERP technology at Academic phase

Cloud Based ERP	Group	Assessment	N	Mean	Median	Standard Deviation	Variance	Calculated t' value
	Academic	Pre- Covid	50	22.15	21.87	2.16	8.66	0.44@
		Post- Covid	50	23.57	22.75	3.95	9.03	13.13**

Results and Discussion

From the table 1, the statistical constants of measures of central tendencies such as mean and median of non-academic related work assisted with cloud based ERP practice in the pre-covid is (27.27), (22.95) respectively and the measure of dispersion i.e. standard deviation is (3.85) and variance is (8.11). From the observation of data, it seems that there is much variation between the values of the measure of central tendencies. The mean and median of scheme work of post-covid are (47.42), (49.00) respectively and the S.D. is (4.71) and variance is (16.75). The comparison of the t value indicates the effectiveness of cloud based ERP techniques in the non-academic sector in the educational institutions in which the data are collected. The non-academic sector includes the Administrators, Educationalist, Software Admin, Teaching Faculties, and Administrative Staffs'. So the hypothesis there exists a significant difference between the non-academic work undertaken in the educational sector assisting with cloud based ERP technology before and after covid is accepted.

From the above table 2, it is realized that the statistical constants of measures of central tendencies such as mean and median of non-academic related work assisted with cloud based ERP technique in the pre-covid is (22.15), (21.87) respectively and the measure of dispersion i.e. standard deviation is (2.16) and variance is (8.66). From the observation of data, it seems that there is much variation between the values of the measure of central tendencies. The mean and median of project work of post-covid are (23.57), (22.75) respectively and the S.D. is (3.95) and variance is (9.03). The comparison of the t value indicates the effectiveness of cloud based ERP techniques in the academic sector in the educational institutions in which the data are collected. The academic sector mainly focuses on students and the teaching faculties. Therefore the hypothesis that there exists a significant influence of academic activities on digital learning based on cloud based ERP techniques before and after Covid is true and it is accepted.

Conclusion

The magnitude of cloud based ERP technology in digital learning engages in recreational approach, a successful pathway in the teaching learning process. In the base of academic and non-academic work activities, especially at the time of covid pandemic, these ERP systems play an effective role in the educational institutions. The basic idea behind cloud based ERP technology is to deliver the entire educational infrastructure through an online medium. The model behind this strategy is IaaS, PaaS, and SaaS over the internet will be undertaken by the appropriate admin, with these the cloud computing will seize many benefits for educational background with the maintenance of reliability, security, privacy issues, effectiveness with almost satisfaction on all sides. With the entire endeavor the effectiveness of cloud based ERP technology on online education at the covid period as proved successfully in this investigation. Ultimately the education system is updated in fashions that, go mobile, go global and get collaborative.

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