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Skills and Competences for Utilization of Web Storage Technology (WST) Platform for Academic Activities by Faculty Members in Faculty of Education, Ahmadu Bello University, Zaria

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Abstract:

This paper focused on Skills and Competences for utilization of Web Storage Technology (WST) Platform for academic activities by Faculty Members in Faculty of Education, Ahmadu Bello University, Zaria. Two objectives were identified for this paper, they are; to find out the WST Platform skills and competences possessed by the Faculty Members; and to identify the challenges encountered by Faculty Members in the utilization of WST Platforms for academic activities in Faculty of Education, A.B.U., Zaria. Quantitative research methodology and cross-sectional survey research design were adopted. This study comprised of 175 Faculty Members in the Faculty of Education, A. B.U., Zaria. It excluded the staff on sabbatical, secondment and on study leave. Total population sampling technique was adopted. Self-developed questionnaire was used to collect data from the respondents. Descriptive statistics (frequency distribution, percentage, mean and standard deviation) was used to analyze the data collected from the respondents. The study discovered that, basic knowledge of computer skills was the most common WST Platform skills and competences possessed by the Faculty Members. The most common challenge encountered by the Faculty Members in utilizing the WST Platforms for their academic activities was poor Internet connection. The researchers recommended that: the WST Platform service providers should put more efforts in providing training of different forms of WST Platform skills and competences. The management of A.B.U., Zaria, should also add more effort in providing strong network bandwidth for Faculty Members' convenient utilization.

Keywords: Academic activities, WST Challenges, WST Skills, Web Storage Technology Platform

Introduction

Information and Communication Technologies (ICTs) are combination of different facilities that provide positive transformation in educational settings; offering unique approaches of teaching, learning and research; and provision of tools for educational purpose or academic activities. The ICT is considered a crucial instrument in educational setting and Web Storage Technology (WST) Platforms is one of the key facets of ICT for effective service delivery for global workplace. The WST, apart from providing online storage platforms, provides the ability to become lifelong learner within environment; and provide opportunity for learners to learn from professionals and colleagues in any web platforms. These are some of the major functions of WST Platforms (Oyeleye, Fagbola, & Daramola, 2014).

The WST Platform is an aspect of Cloud Computing Technology which provides applications, resources and services such as platform, software, infrastructure and data storage to online network platform users via a remote server hosted on the Internet. As an Internet-based platform, the WST Platform makes applications, services or resources available to users on-demand via the Internet from providers' servers (Thomas, Zaigham & Ricardo, 2015). Some of the types of WST platform are Amazon Web Services (AWS), Microsoft Windows Azure, Google cloud, IBM Bluemix, Alibaba cloud, Rackspace, Hadoop, Softlayer etc.

Web Storage Technology platforms are tools that facilitate effective academic activities performed by faculty members in order to discharge their primary responsibilities (teaching, research and community development) in the academia. Academic activities that can be used on Web Storage Technology platforms include virtual teaching and learning, academic collaborations, research, storing academic documents, assessing students' work, supervising students work (project, dissertation and thesis), academic discussion, knowledge and document sharing, web communication among others. Most faculty members that have fully embraced the WST Platforms have recorded immense advancement in

its applications for improvement of their academic activities and personal development (Cieplak, & Malec, 2014). Thus, the researchers find it necessary to conduct this study in order to explore the skills and competences for utilization of WST Platforms for academic activities by Faculty members in Faculty of Education, Ahmadu Bello University, Zaria.

Statement of the Problem

Web Storage Technology Platform is an internet-based environment which provides an opportunity for users to access and use different applications, services and resources using remote servers hosted on the Internet rather than a local server or a personal computer. The application of WST platform in higher education institutions and for academic purpose creates numerous advantages, it increases greater access to already stored data irrespective of users' location. Spreeuwenberg (2012) stated that "with WST platform, it becomes easier to store, access, use and manage data with several devices such as smartphones, laptops, desktops, palmtops, etc. to facilitate its access anywhere and at anytime". It provides an opportunity for individuals and organizations to avoid financial waste and achieve cost reduction in Information Technology (IT) investment of both hardware and software.

Undoubtedly, the advent of WST Platforms supports all spheres of academic activities effectively and efficiently. Regrettably, "the recurring Global Economic Meltdown (GEM) and national financial hiccups currently being experienced by the developing countries continue to pose serious threats to the survival of quality education. Governmental institutions and University administrators helplessly fight for the provision of unlimited fundamental ICT facilities and support tools, services and applications needed to facilitate effective academic activities in Universities. Also, developing countries generally face challenges of adequacy of human and financial resources to harness and effectively utilise the potential of ICT to their advantage" (Oyeleye, Fagbola, & Daramola, 2014).

Besides, the researchers have especially noted that, the fragile nature of hardware storage facilities, in the areas of storing, accessing, using and managing of academic documents in the Faculty of Education, A.B.U. Zaria affect potentials for successful and effective conduct of academic activities. Such academic activities include academic collaboration, virtual teaching, knowledge and documents sharing, web communication and supervision among others.

Objectives of the study

The objectives of the study are:

1. To find out the Web Storage Technology Platform skills and competences possessed by Faculty Members for using the platform for Academic activities in the Faculty of Education, Ahmadu Bello University, Zaria; and
2. To identify the challenges encountered by Faculty Members in utilization of Web Storage Technology platforms for academic activities in the Faculty of Education, Ahmadu Bello University, Zaria

Literature Review

Web Storage Technology Platform Skills and Competences

The need for WST Platform skills and competences by users is to take full advantage of the Internet-based platform. The WST Platform skills and competences required for its effective utilization are basically to be able to store, access and use the applications, services and resources provided by the platforms (Cieplak, & Malec, 2014). Below are some of the WST Platform skills and competences required for its utilization:

Fundamental Knowledge of Computers It includes understanding of the “basic computer hardware components and terminology; the concepts and basic functions of a common computer operating system; Start up; log on; and shutting down of computer system properly; use of mouse (pointing device) and keyboard; use of help and know how to troubleshoot routine problems; identify and use icons (folders, files, applications, and

shortcuts/aliases) (Cieplak, & Malec, 2014); identify common types of file extensions (e.g. doc, pdf, html, jpg, gif, xls, ppt, rtf, txt, exe, etc); downloading and installation of software on hard disk; understand and manage file structure of computer; and check for and installation of operating system updates” (Cieplak, & Malec, 2014).

Expertise in Using Productivity Software. Such as: creation of documents of various types and save in a desired location; retrieval of an existing document from saved locations; printing of a documents; knowledge of using different forms of software programs such as Word processing (example: MS Word, Google Doc, Writer); Presentation (example: PowerPoint, Impress), Spreadsheet (example: Excel}}

Electronic Communication Skills. Such as: Email; compose (Send, Reply, Forward messages) and add attachments to messages; retrieval of attachments from email messages; copy, paste and print message contents; organize email folders; Downloading and Moving Files skills and competencies among others.

Internet Skills. The skills required include “Set up an Internet connection and connect to the Internet; have a working knowledge of the World Wide Web and its functions, including basic site navigation, searching, and installing and upgrading a Web browser; use browser effectively, including bookmarks, history, toolbar, forward and back buttons; use search engines and directories to find information on the Web; download files and images from a Web page; understand and effectively navigate the hyperlink structure of the Web; and understand how to keep an information safe while using the Internet” (Cieplak, & Malec, 2014).

Other skills as identified by (Doyle, 2019) are: Collaborative and cooperative skills, Critical thinking; Creative thinking; Communication skills; time management; Programming Languages and Coding Skills; Database Management Skills; WST Migration and Developmental Operations (DevOps).

Challenges to utilization of Web Storage Technology Platforms

The challenges identified by Almazroi (2017), that tend to hold back individuals and organizations from using Web Storage Technology are:

Security and Confidentiality

These are crucial issues considered to forestall users from utilizing Web Storage Technology Platforms. The data and applications of the users' ought to be inclined to a variety of safety challenges like loss of data, and unauthorized entree to the absence of full manage on web records and other facilities. Considering the fact that the service providers ensured to users that experts are managing the whole processes but the mind of the users is not at ease (Almazroi, 2017).

Service Level Agreement (SLA)

It is a covenant amongst the users and service providers which clearly states the conditions of providing the services. The providers use the covenant to ensure user's satisfaction. It's considered as crux when choosing any service provider, users usually agreed on the conditions to ensure satisfactions. Perceptions on conditions, absence of some essential needs of users as well as ways of evaluating the conditions are some of the critical areas of concern. (Almazroi, 2017).

Vendor Lock-in

The service providers provide different ways of operating the platforms to users. They have no standard format for data storage. This affects users to migrate at will to other service providers, it averts users in terms of transferring from one carrier provider to another or on-premise data center. When users are locked into a particular provider, switching to any other could be challenging and could entice excessive cost (Almazroi, 2017).

Acquiescence and Location of Service Providers

Acceptance is of paramount importance in term of Web Storage Technology platform utilization. Users may be unaware about the vicinity of their stored data, and have no authority on the

vicinity, which will in turn lead to felony problems with ethics and code of conducts or regulatory laws. Legal concerns can muddle institutions into dissatisfied situations which may lead to felony crisis as a result of guidelines of the vicinity where information is housed (Almazroi, 2017).

Methodology

Quantitative research methodology was employed and cross-sectional survey research design was used for the research. The study comprised of 175 Faculty Members in the Faculty of Education, Ahmadu Bello University, Zaria, excluding the staff on sabbatical, secondment and staff on study leave. Total population sampling technique was adopted. Self-developed questionnaire with open and close ended responses was used to collect data from the respondents. Descriptive statistics (frequency distribution, percentage, mean and standard deviation) was used to analyze the data collected from the respondents. An average mean score of 3.0 was adopted as benchmark for decision making on the results obtained from the analysis of the data collected.

Data Presentation and Discussion of the Results

This section presented the statistical analysis and discussion of the data collected for this study "The WST Platform Skills and Competences possessed by Faculty Members for utilisation of WST Platforms in the Faculty of Education, A.B.U., Zaria".

In order to find out the WST Platform Skills and Competences possessed by the respondents, a list of WST Platform Skills and Competences was provided for them to select those they possessed. Table 1 presents the data collected and analyzed in this regard.

Table 1: Web Storage Technology Platform Skills and Competences possessed by Faculty Members for utilisation of WST Platforms for Academic Activities in the Faculty of Education, Ahmadu Bello University, Zaria

S/N	Web Storage Technology platform Skills and Competences	Departments																M	SD		
		Arts and Social Science Education		Educational Foundations and Curriculum		Educational Psychology and Counseling		Home Economics		Human Kinetics and Health Education		Library and Information Science		Science Education		Vocational and Technical Education				Total	
		F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%			F	%
1	Fundamental of Computers skills	32	25.0	17	13.3	13	10.2	9	7.0	16	12.5	11	8.6	17	13.3	13	10.2	128	100	8.0	2.8
2	Expertise in using productivity software (Word processing, PowerPoint, Excel etc)	27	21.1	14	10.9	11	8.6	7	5.5	14	10.9	11	8.6	15	11.7	11	8.6	110	85.9	7.0	2.6
3	Electronic communication skills (Email, adding attachment, compose, send and reply mails etc)	26	20.3	17	13.3	-	-	9	7.0	16	12.5	11	8.6	13	10.2	10	7.8	102	79.7	6.6	2.7
4	Internet skills	22	17.2	17	13.3	13	10.2	9	7.0	16	12.5	11	8.6	16	12.5	11	8.6	115	89.9	7.5	2.7
5	Downloading and moving files skills	20	15.6	15	11.7	8	6.3	7	5.5	12	9.4	11	8.6	13	10.2	10	7.8	96	75.3	6.3	2.5
6	Programming language and coding skills	0	0.0	0	0.0	0	0.0	0	0.0	2	1.6	3	2.3	3	2.3	0	0.0	8	6.3	0.6	0.8
7	Database management skills	2	1.6	6	4.7	2	1.6	0	0.0	4	3.1	8	6.3	3	2.3	1	0.8	26	20.4	2.0	1.4
8	Time management skills	20	15.6	6	4.7	5	3.9	4	3.1	10	7.8	10	7.8	8	6.3	4	3.1	67	52.3	4.1	2.0
9	Web Storage Technology migration skills	2	1.6	1	0.8	0	0.0	1	0.8	1	0.8	7	5.5	2	1.6	1	0.8	15	11.7	1.2	1.1
10	Developmental Operations (Devops)	0	0.0	1	0.8	0	0.0	0	0.0	1	0.8	1	0.8	2	1.6	0	0.0	5	3.9	0.4	0.6

Table 1 shows the WST Platform Skills and Competences possessed by the Faculty Members for utilization of the WST Platforms for academic activities in the Faculty of Education, A.B.U., Zaria. Based on the average mean score of 3.0 benchmark adopted for interpretation and decision making of the responses, the WST Platform Skills and Competences commonly possessed by the respondents were: Fundamental of computer skills, Internet skills, expertise in using productivity software (word processing, PowerPoint, Excel etc.), electronic communication skills (email, adding attachment, compose, send and reply mails etc.), Downloading & moving file skills and Time Management. However, the most common WST Platform Skill and Competence possessed by them was basic knowledge of computer with 8.0 mean scores. The less common WST Platform Skill and Competence possessed by the respondents were: Database management skills, Web Storage Technology migration skills, programming language & coding skills and Developmental Operations (Devops). The least of the less common WST Platform Skills and Competences possessed by the respondents was Developmental Operations (Devops) with an average mean score of 0.4. The results showed that, basic knowledge of computer was the most common WST Platform Skill and Competence possessed by the Faculty Members. Whereas, Developmental Operations (Devops) was the least of the less common WST Platform Skill and Competence possessed by the respondents. This finding suggests that the Faculty Members in the Faculty of Education can reasonably utilise the WST Platforms for their academic activities.

Challenges Encountered by Faculty Members in utilisation of Web Storage Technology Platforms for Academic Activities in the Faculty of Education, Ahmadu Bello University, Zaria

In order to identify the challenges encountered by Faculty Members in utilizing WST Platforms for academic activities, WST Platform challenges were presented for the respondents to select the ones that matched their interest. Table 2 presents the data collected and analyzed for this purpose.

Table 2: Challenges Encountered by Faculty Members in Utilisation of Web Storage Technology Platforms for Academic Activities in the Faculty of Education, Ahmadu Bello University, Zaria

S/N	Challenges	Departments																Total	M	SD	
		Arts and Social Science Education		Educational Foundations and Curriculum		Educational Psychology and Counseling		Home Economics		Human Kinetics and Health Education		Library and Information Science		Science Education		Vocational and Technical Education					
		F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%				
1.	Privacy and Confidentiality concerns	10	7.8	11	8.6	6	4.7	6	4.7	8	6.3	5	3.9	9	7.0	6	4.7	61	47.7	4.2	2.1
2.	Compliance issue and location of the service providers	10	7.8	5	3.9	5	3.9	0	0.0	3	2.3	2	1.6	6	4.7	11	8.6	42	32.8	2.4	1.6
3.	Vendor Lock-in	5	3.9	4	3.1	3	2.3	0	0.0	0	0.0	4	3.1	2	1.6	1	0.8	19	14.8	1.2	1.1
4.	Data Security	11	8.6	7	5.5	5	3.9	4	3.1	5	3.9	3	2.3	5	3.9	3	2.3	43	33.7	2.6	1.6
5.	Service Level Agreement (SLA)	7	5.5	2	1.6	3	2.3	0	0.0	3	2.3	1	0.8	1	0.8	0	0.0	17	13.3	0.9	0.9
6.	Poor Internet connection	28	21.9	17	13.3	12	9.4	9	7.0	15	11.7	8	6.3	16	12.5	13	10.2	118	92.3	7.3	2.7
7.	Hacking (Cybercrime)	20	15.6	15	11.7	8	6.3	8	6.3	13	10.2	6	4.7	10	7.8	11	8.6	91	71.2	5.9	2.4
8.	Lack of access control	7	5.5	5	3.9	2	1.6	1	0.8	3	2.3	2	1.6	3	2.3	2	1.6	25	19.6	1.6	1.3
9.	Lack of ICT skills	24	18.6	12	9.4	6	4.7	8	6.3	10	7.8	2	1.6	13	10.2	9	7.0	84	65.6	5.3	2.3
10.	Changing skills requirements	10	7.8	3	2.3	1	0.8	0	0.0	2	1.6	2	1.6	3	2.3	5	3.9	26	20.3	1.5	1.2
11.	Business continuity	3	2.3	2	1.6	1	0.8	0	0.0	0	0.0	0	0.0	2	1.6	0	0.0	8	6.3	0.4	0.6
12.	Network Security	12	9.4	8	6.3	6	4.7	3	2.3	8	6.3	5	3.9	7	5.5	6	4.7	55	43.1	3.6	1.9
13.	Electricity problem	0	0.0	2	1.6	0	0.0	0	0.0	3	2.3	0	0.0	1	0.8	0	0.0	6	4.7	0.4	0.6

Table 2 shows the challenges encountered by Faculty Members in utilizing the WST Platforms for academic activities in the Faculty of Education, A.B.U., Zaria. Based on the average mean scores of 3.0 benchmark adopted for interpretation and decision making of the responses, Table 2 displays that, the WST Platform challenges commonly encountered by the respondents in utilising the WST Platforms for their academic activities were: Poor Internet connection; hacking (cybercrime); lack of ICT skills; privacy and confidentiality concern; and Network security. However, the most common WST Platform challenges being encountered by the respondents was Poor Internet connection with average mean score of 7.3. The less common challenges encountered by the Faculty Members were: Data security; compliance issues & location of the service providers; lack of access control; changing skills requirements; vendor lock-in; Service Level Agreement (SLA); business continuity and electricity problem; The least of the less common WST Platform challenges were Business continuity and electricity problem with an average mean score of 0.4 each. The results showed that poor Internet connection was the most common WST Platform challenge encountered by the Faculty Members in utilizing WST Platforms for academic activities in the Faculty of Education, A.B.U., Zaria. Whereas, business continuity and electricity problem were the least of the less common WST Platform challenges encountered by the Faculty Members in utilizing WST Platforms for their academic activities. This finding confirmed that of Osama, Bader and Nazeeh (2014) which stated that “security is the utmost concern when adopting and utilizing WST Platforms and Cloud Computing Technology in general”. This implies that the Faculty Members cannot effectively utilize the WST Platforms for their academic activities in the Faculty of Education, A.B.U., Zaria.

Summary of the Major Findings

The following are the major findings of the study:

1. Fundamental knowledge of computer was the most common Web Storage Technology Platform Skill and Competence possessed

by the Faculty Members for utilizing the WST Platforms for academic activities in the Faculty of Education, A.B.U., Zaria.

2. The most common challenge encountered by the Faculty Members in utilizing WST Platforms for their academic activities was poor Internet connection in the Faculty of Education, A.B.U., Zaria.

Conclusion

The WST Platforms are new novelties in the 21st century that helps Faculty Members to execute their academic primary responsibilities effectively and efficiently. Thus, possession of the WST Platform skills and competences are basic necessities required of Faculty Members to take full advantages of the technology. In the light of these, it can be concluded that, some of the Faculty Members possessed WST Platform skills and competences that will allow them to utilize the platforms for their academic activities in Faculty of Education, A.B.U. Zaria.

Recommendations

Based on the findings of the study, it is recommended that:

1. The WST Platform service providers should put more efforts in providing varieties of training programmes on acquisition and utilization of WST Platforms Skills and Competences.
2. The management of A.B.U., Zaria, and indeed the educational institutions particularly higher institutions should endeavor to increase internet bandwidth for faculty members to conveniently utilize the WST Platforms for their academic activities.

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