

Collaboration in the Cloud Computing Among Students of Professional Departments of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

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Abstract

The Study examines how students of professional departments of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, collaborate in the cloud computing. A well structured questionnaire was distributed among the 160 students under study, only 121 retrieved. Findings of this study show that all the respondents were aware of using the Internet, respondents prefer to access internet from mobile phone, and student's collaboration in the cloud computing is being heavily used web mail, face book, and yahoo. And also the study highlights that the majority of respondents are chatting (Mean=3.75) and Sending and receiving email. (Mean=3.55). Also study showed that the majority of respondents have a very high ability to use and access Google applications "Google groups" (Mean=4.78), "Google sites" (Mean=3.88), "Yahoo groups" (3.50), "Google talk" (Mean=3.09), "Google Docs" (Mean=3.07), "Google calendar" (Mean=3.88), also respondents have perfect ability to use "Wikipedia" (Mean=3.72). The study revealed that there is no significant difference in the extent of satisfaction of professional students to collaborate in the cloud computing based on gender ($t = 0.518$; $df = 119$; $P > 0.05$); also there is no significant difference in impact of cloud computing in education of professional students to collaborate in the cloud computing based on gender ($t = 0.379$; $df = 119$; $P > 0.05$). There is significant difference in the extent of satisfaction of professional students to collaborate in the cloud computing based on post graduation ($t = -2.112$; $df = -119$; $p < 0.05$); and also there is significant difference in impact of cloud computing in education of professional students based on post graduation ($t = -2.185$; $df = -119$; $p < 0.05$). There is significant difference in evaluation performance of collaboration in the cloud based on professional departments ($F = 3.565$; $df = 4 \& 116$; $p < 0.05$); these significant according to (library since & tourism), (library science & journalism). Eventually, the study discusses the problems that are preventing while collaborate and use of the internet.

Keywords: Collaboration, Cloud computing, Professional students

1. Introduction

Cloud computing is transforming 21st century organizations, and libraries are not excluded.

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All around the globe more organizations, including libraries, are using cloud computing enabled Web-based services to organize events or groups, to accomplish their missions and to get work done. This is not surprising as both cloud computing and the emerging Web-based services provide the modern organization with opportunities for greater synergies among various individuals over dispersed locations (Mark-Shane, 2010).

Cloud based meeting and cloud based collaboration tools and its applications services are some of advanced important of the information technology industry's hottest items. In the simple way (Jamsa, 2013, pp. 85-86).

Now day's academic areas are adopting computing resources and services that do not own to provide new and innovative services. So, the professional departments working in the cloud zone to achieve their goals. For years many students used to collaborate via sending and receiving email. To meet their needs of improving their knowledge and also many students attend conferences and forum via virtual meetings (Skype VOIP, GoToMeeting, ect...).

2. Scope and Limitations

The study conducted the students of professional departments (library science, tourism, journalism, law, and physical education) of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, duration from February - April 2014.

3. Purpose and Objectives of the Study

The main purpose of the study is to investigate the collaboration in the cloud computing among students of professional departments of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad. Specifically the study found out;

1. To identify awareness of the Internet by students of professional departments in Dr. B.A.M.U
2. To determine the tools that are using to collaborate in the cloud by students of professional departments in Dr. B.A.M.U
3. To know how much the ability to access and use some popular collaborations application in the cloud computing
4. To determine the significant differences between the responses of members of the study areas for extent satisfaction to collaborate in the clouds based on gender and post graduation of professional students of Dr. B.A.M.U

5. To determine the significant differences between the responses of members of the study areas for the impact of cloud computing in the education based on gender and post graduation of professional students of Dr. B.A.M.U
6. To determine the significant differences between the responses of members of the study areas for the evaluation performance of collaboration in the cloud computing based on the different variables of the study (professional departments, age, years of experience)
7. To find out the difficulties encountered while collaborating in the clouds by professional students of Dr. B.A.M.U

4. Methodology

Descriptive method was adopted for data collection, in order to fulfill the specific objectives, researcher-designed questionnaire which administered among 160 students, only 121 returned usable questionnaire giving a response rate of 75.6% which formed the basis for the analysis.

Table No. 1: Distribution of Students of Professional Departments

Department	Frequency	Percentage (%)
Library and Information science	25	20.7
Tourism	15	12.4
journalism	32	26.4
low	25	20.7
Physical education	24	19.8
Total	121	100

5. Data Analysis

Data having been collected through the use of administrative questionnaire was analyzed using descriptive statistics using the Statistical Package for Social Sciences (SPSS) software, using (mean, standard deviation, T-test and One-Way Anova).

The main aim of questionnaire was to investigate how students collaborate in the clouds computing by professional departments of Dr. Babasaheb Ambedkar Marathwada University.

Table No. 2: Gender of Respondents

Gender	Frequency	Percentage (%)
Male	80	66.1
Female	41	33.9
Total	121	100

The table no.2 shows the distribution of respondents by sex. It shows 80 (66.1%) of the respondents are male, while the female make up the remaining 41 (33.9%).

Table No. 3: Nationality of Respondents

Nationality	Frequency	Percentage (%)
Indian	116	95.9
Non Indian	05	4.1
Total	121	100

Data in table no. 3 shows that the majority 116 (95.9%) of the respondents are Indian, whereas only 5(4.1%) are foreigners.

Table No. 4: Age of Respondents

Age	Frequency	Percentage (%)
= < 20	04	3.3
21 - 23	41	33.9
24 - 26	57	47.1
27 - 29	12	9.9
= > 30	07	5.8
Total	121	100

From table no. 4 shows that the majority 98 (81%) of the respondents between the age of 21 to 26. and 19 (15.7%) higher than the age of 30 to 34. Whereas only 4(3.3%) less than 20

Table No.5: Qualification of Respondents

qualification	Frequency	Percentage (%)
PG ^{1st}	58	47.9
PG ^{2nd}	63	52.1
Total	121	100

The table no. 5 shows that 58 (47.9%) of respondents belong to PG (first year), whereas 63 (52.1%) of respondents belong to PG (second year).

Table No. 6: Awareness of using the Internet

Awareness of Internet	Frequency	Percentage (%)
Yes	121	100
No	-	-
Total	121	100

The table no.6 shows that all the respondents 121(100%) are aware of using the Internet, This result confirmed by the study of Singh (1998) who revealed that all the librarians had heard and had awareness of the Internet.

Table No. 7: Experience of using Internet

Years of experience	Frequency	Percentage (%)
0 to 1 year	09	7.4
1 to 2 years	27	22.3
2 to 3 years	35	28.9
3 to 4 years	21	17.4
More than 4 years	29	24.0
Total	121	100

The table no.7 shows that more than two third 85(70.3%) of the respondents had been using the Internet more than 3 years. Also this study shows that 27(22.3%) have experience for 1-- 2 years, whereas only 9 (7.4%) of respondents had been using the Internet for 0 – 1 year.

Table No. 8: Frequency of using the Internet

Frequency of use	Frequency	Percentage (%)
Every day	77	63.6
2 or three times in week	24	19.8
Once in week	12	9.9
2 or three times in month	08	6.6
Once in month	-	-
Total	121	100

It has been showed from the table no.8 that a majority 77(63.6%) of respondents use the internet every day. And 24(19.8%) of respondents use it for two or three times in week, these results are somehow in lines with findings of Kharparde (2011) and Islam (2013) who showed that the majority of respondents use internet every day and more than two times in week. And also the study showed that 12(9.9%), 8(6.6%) of respondents are using the Internet once in week, and 2 or three times in month otherwise no one of respondents use the Internet once in month.

Table No.9: Mean Response Values and Standard Deviation of Students' Place of using the Internet

Place	Mean	Std. Deviation	Rank
Department computer lab	3.38	1.624	3
At home	3.46	1.555	2
Mobile phone	3.50	1.592	1
Internet Cafés	2.88	1.299	4
At friends/Colleague's home	2.21	1.316	6
University library	2.51	1.473	5

Note: 5=Always, 4=Often, 3=Sometimes, 2=Rarely, 1=Never

Table 9 shows that the majority of respondents are similarity always accessing the Internet from "Mobile phone", home and department lab, (mean=3.50), (mean=3.46) and (mean=3.38) respectively. And also study showed that low similarity rates to use the internet from "Internet Cafés" (mean=2.88), "University library" (mean=2.51), "At friends/Colleague's home" (mean=2.21).

Table No.10: Frequency of Clouds Computing Opening Accounts

Department Accounts	Library	Tourism	Journalism	Law	Physical education	Frequency	Percentage (%)
Gmail	24	14	28	21	15	102	84.30
Yahoo	13	07	12	13	09	54	44.63
Hotmail	-	-	03	-	04	7	5.79
Rediff mail	02	04	06	04	05	21	17.36
Zoho mail	02	-	01	-	-	3	2.48
MySpace	-	01	01	-	01	3	2.48
Facebook	15	13	24	19	19	90	74.38
You Tube	02	06	11	6	12	37	30.58
Twitter	02	05	10	05	03	25	20.66
Blog	02	01	10	05	-	18	14.88
Skype	01	02	02	03	09	17	14.05
Nimbuz	02	03	-	-	04	9	7.45
Other	01	03	-	02	-	6	4.96

From table no.10 it is revealed that 102 (84.30%), 90 (74.38%), 54 (44.63%) of respondents have opening accounts for Gmail, Facebook and Yahoo, respectively. 37 (30.58%) and 25(20.66%) of respondents have opening accounts in You Tube and Twitter, respectively. 18(14.3%), 17 (14.05%), of respondents have similarity of opening accounts, whereas only 9(7.45%), 7(5.79%) , 6(4.96%) of students have few opening accounts in Nimbuz, Hotmail and other, respectively.

Table No.11: Tools of Collaborating in the Cloud Computing

Tools	Mean	Std. Deviation	Rank
Web mail	4.25	1.149	1
Instant messaging (IM)	2.86	1.491	3
Wiki	2.81	1.572	5
Blog	1.99	1.339	9
Virtual meeting	1.94	1.356	10
Skype	1.89	1.270	11
Shared documents	2.55	1.489	6
Microsoft office web applications	2.18	1.455	7
Social networks	3.32	1.479	2
Phone systems	2.81	1.551	4
Calendar management	2.07	1.436	8

Note: 5=Always, 4=Often, 3=Sometimes, 2=Rarely, 1=Never

From the table no.11 it is obvious that the majority of respondents are using "web mail" (mean=4.25), as a main tool to collaborate in the cloud, This finding similar to many studies such as that of Ajuwon (2003), Palesh, Saltzman and Koopman (2004), Khaparde (2001), Nwezeh (2010) and Bankole (2012) who revealed that the majority of students used the email to communicate with their friends and colleagues.). "Social networks" and "Instant messaging" ranked as second and third tool (mean=3.32), (mean=2.86) respectively. Then, "Phone systems" (mean=2.81), "Wiki" (mean=2.81), "Shared documents" (mean=2.55), "Microsoft office web applications" (mean=2.18), "Calendar management" (mean=2.07). Finally less rates come to "blog, virtual meeting, and "Skype" (mean=1.99), (mean=1.94), (mean=1.89), respectively.

Table No. 12: Purpose of Collaboration

Purpose	Mean	Std. Deviation	Rank
Chatting	3.75	1.428	1
Send a short message to another user outside of e-mail	3.37	1.324	3
To talk face to face interaction	2.62	1.392	7
Audio-only calls over the internet	2.33	1.480	9
Sending and receiving email	3.55	1.549	2
Sending voice mail and receiving	2.36	1.543	8
Add and edit content in blog, wiki	2.21	1.443	11
Create and access to a word processor, spreadsheet, and presentation	2.71	1.524	6
Sharing documents (videos, photos)	2.94	1.468	5
Create and publish content on the web (e.g. blog)	2.26	1.357	10
Share calendars to simply appointments and meetings	2.18	1.478	12
Entertainment	3.14	1.593	4

Note: 5=Always, 4=Often, 3=Sometimes, 2=Rarely, 1=Never

Table 12 shows that the main purpose to collaborate in the cloud is “chatting” (mean=3.75), “Sending and receiving email” (mean=3.55), “Send a short message to another user outside of e-mail” (mean=3.37), “Entertainment” (mean=3.14), On the other hand, respondents did not provide similarity less purpose regarding to “Sharing documents (videos, photos)” (mean=2.94), “Create and access to a word processor, spreadsheet, and presentation” (mean=2.71), “Sending voice mail and receiving” (mean=2.36), “Audio-only calls over the internet” (mean=2.33), “Create and publish content on the web (e.g. blog)” (mean=2.26). “Add and edit content in blog, wiki” (mean=2.21), and “Share calendars to simply appointments and meetings” (mean=2.18).

Table No.13: Ability to Access and Use Some Popular Collaborations Applications and Services in the Clouds Computing

Ability	Mean	Std. Deviation	Rank
Google groups	4.78	1.651	1
Yahoo groups	3.50	1.967	4
Google Docs	3.07	1.880	6
Google calendar	3.02	1.800	7
Google sites	3.88	2.005	2
Google talk	3.09	1.945	5
GoToMeeting and WebEx	2.23	1.537	13
Zoho meeting	2.04	1.480	15
Word press (a leading blog sit)	2.40	1.749	10
blogger	2.46	1.718	9
Office web apps	2.53	1.780	8
Zoho wiki	2.28	1.649	12
Wikipedia	3.72	1.885	3
Zentation	2.21	1.653	14
Picasa	2.69	1.755	8
Other	2.33	1.777	11

Note: 6= Perfectly, 5=Very well, 4=Quite well, 3=Fairly well, 2=Very little, 1=Not at all

Table 13 shows that the majority of respondents had a very high ability to use and access Google applications "Google groups" (mean=4.78), "Google sites" (mean=3.88), "Yahoo groups" (3.50), "Google talk" (mean=3.09), "Google Docs" (mean=3.07), "Google calendar" (mean=3.88), also respondents have perfect ability to use "Wikipedia" (mean=3.72). Whereas the respondents have less ability to use other applications and services, these means range between (2.04 to 2.69).

Hypotheses: There is no significant gender difference in the extent of satisfaction of professional students to collaborate in the cloud computing in Dr. B.A.U

Table 14: T-Test Comparisons of Extent of Satisfaction Based on Gender

Extent of satisfaction	N	X	SD	t cal	df	Sig.	Rmk
Male	80	2.150000	.7811060	.518	119	.605	p>0.05
Female	41	2.073171	.7546603				

* Significant at 0.05 level

Ho t = 0.518; df = 119; p>0.05

Decision: Not significant

The study found that there is no significant gender difference in the extent of satisfaction of professional students. The study showed t value of 0.518 and a significant score of 0.605, t = .518; df = 119; p > 0.05. The hypothesis is hereby validated.

Hypotheses: There is no significant gender difference in impact of cloud computing in education of professional students in Dr. B.A.U

Table 15: T-Test Comparisons of Impact of Cloud Computing in Education Based on Gender

Impact of cloud in education	N	X	SD	t cal	df	Sig.	Rmk
Male	80	1.800000	.9195486	0.379	119	0.706	p>0.05
Female	41	1.731707	.9753048				

* Significant at 0.05 level

Ho t = 0.379; df = 119; p>0.05

Decision: Not significant

The study found that there is no significant gender difference in impact of cloud in education of professional students. The study showed t value of 0.379 and a significant score of 0.706, $t = 0.379$; $df = 119$; $p > 0.05$. The hypothesis is hereby validated.

Hypotheses 3: There is no significant post graduation difference in the extent of satisfaction of professional students to collaborate in the cloud computing in Dr. B.A.U

Table 16: T-Test Comparisons of Extent of Satisfaction Based on Post Graduation

Extent of satisfaction	N	X	SD	t cal	df	Sig.	Rmk
PG ^{1st}	58	2.276	0.744	2.112	119	0.037	P <0.05
PG ^{2nd}	63	1.984	0.772				

* Significant at 0.05 level

H₀ $t = -2.112$; $df = -119$; $p < 0.05$

Decision: significant

The study revealed that there is significant post graduation difference in the extent of satisfaction of professional students in Dr. B.A.U. The study revealed a t-value of 2.112 and a significant score of 0.037, $t = 2.112$; $df = 119$, $p < 0.05$. The hypothesis is therefore invalidated. PG^{1st} students exhibited higher level in the extent of satisfaction ($x = 2.276$) than PG^{2nd} ($x = 1.984$).

Hypotheses: There is no significant post graduation difference in impact of cloud computing in education of professional students in Dr. B.A.U

Table 17: T-test Comparisons of Impact of Cloud Computing in Education Based on Post Graduation

Impact of cloud in education	N	X	SD	t cal	df	Sig.	Rmk
PG ^{1st}	58	1.586	0.817	-2.185	119	0.031	P <0.05
PG ^{2nd}	63	1.952	1.007				

* Significant at 0.05 level

H₀ $t = -2.185$; $df = -119$; $p < 0.05$

Decision: significant

The study revealed that there is significant post graduation difference in impact of cloud in education of professional students in Dr. B.A.U. The study revealed a t-value of -2.185 and a significant score of 0.031, $t = 0.031$; $df = 119$, $p < 0.05$. The hypothesis is therefore invalidated. PG^{2nd} students exhibited little higher level in the extent of satisfaction ($x = 1.952$) than PG^{1st} ($x = PG^{1st}$).

Table No. 18: Difficulties to Collaborate in the Clouds

Difficulties	Mean	Std. Deviation	Rank
Lack of IT knowledge	3.64	1.371	1
Lack of facility	3.21	1.284	2
Lack of time	2.99	1.307	5
Fear or anxiety	2.40	1.364	7
Less speed	3.14	1.416	3
Failure connection	3.01	1.332	4
Some application costly according to my financial	2.67	1.446	6

Note: 5=Always, 4=Often, 3=Sometimes, 2=Rarely, 1=Never

An attempt was made to explore the difficulties faced by the respondents to collaborate in the cloud computing. Table 16 shows that the respondents had the following problems: "Difficulty in lack of IT knowledge" (mean=3.64), "lack of facility" (mean=3.21), "Less speed" (mean=3.14), "Failure connection" (mean=3.01), "Problems in Lack of time" (mean=2.99), "Some application costly according to my financial" (mean=2.67), and "Fear or anxiety" (mean=2.40).

Table No. 19: Evaluation Performance of Collaboration in the cloud Computing

Performance	Mean	Std. Deviation	Rank
Accessibility	2.54	1.713	7
Easy to use	2.74	1.731	6
Security	3.07	1.621	5
Privacy	3.21	1.658	3
Capacity	3.30	1.815	2
User friendly	3.11	1.779	4
Reliability	3.42	1.692	1

Note: 1= High level, 2, 3, 4 ...7= Low level

It is noticed from table 16 that the respondents given the positive estimation performance to collaborate in the cloud computing. "Reliability" (mean=3.42), "Capacity" (mean=3.30), "Privacy" (mean=3.21), "User friendly" (mean=3.11), "Security" (mean=3.07), "Easy to use" (mean=2.74), and "Accessibility" (mean=2.54).

Hypotheses: There is no significant difference in evaluation performance of collaboration in the cloud computing based on professional departments, age and years of experience.

Table 20: On-Wayanova-Test Compare Means of Evaluation Performance of Collaboration in the Cloud Based on Based on Professional Departments, Age and Years of Experience

Factor variables	Source variance	Sum of Squares	df	Mean Square	F	Sig.	Rmk
Departments	Between Groups	1004.699	4	251.175	3.565	0.009	p<0.05
	Within Groups	8173.565	116	70.462			
	Total	9178.264	120	-			
Age	Between Groups	28.883	4	7.221	0.092	0.985	p>0.05
	Within Groups	9149.381	116	78.874			
	Total	9178.264	120	-			
Years of experience	Between Groups	187.229	4	46.807	0.604	0.661	p>0.05
	Within Groups	8991.036	116	77.509			
	Total	9178.264	120	-			

* Significant at 0.05 level

Departments: Ho F = 3.565; df = 4&116; p<0.05

Decision: significant

* Significant at 0.05 level

Age: Ho F = -0.092; df = 4&116; p>0.05

Decision: Not significant

* Significant at 0.05 level

Years of experience: Ho F = -0.604; df = 4&116; p>0.05

Decision: Not significant

From above, the study revealed that there is no significant difference in evaluation performance of collaboration in the cloud computing based on age and years of experience, F = -0.092; df = 4&116; p>0.05, and F = -0.604; df = 4&116; p>0.05, respectively. Whereas there is significant difference in evaluation performance of collaboration in the cloud according to professional departments. The study revealed a F-value of 3.565 and a significant score of 0.009, F= 3.565; df = 4&116, p< 0.05. The hypothesis is therefore invalidated.

The next table no: **21**, shows the source significant deference's based on Professional departments using

Table 21: Dunnett C. Multiple Comparisons for Professional Departments

Professional departments	Library Science	Tourism	journalism	low	Physical education
Library and Information science		*	*		
Tourism	*				
journalism	*				
low					
Physical education					

From the table above, we noticed that there are deference's significant between (library since & tourism), (library science & journalism).

6. Conclusion

The students of professional departments of Dr. Babasaheb Ambedkar Marathwada University had high light to use web mail and Facebook. Also respondents had high perception to use Google applications. the study revealed that there is no significant gender difference in the extent of satisfaction of professional students to collaborate in the cloud computing; otherwise there is significant post graduation difference based in impact of cloud computing in education of professional students to collaborate in the cloud computing.

There is no significant gender difference in impact of cloud computing in education of professional students to collaborate in the cloud computing; on other hand, there is significant difference in impact of cloud computing in education of professional students based on post graduation. The majority difficulties faced by respondents lack of IT and lack of facilities. This study has a vital significance in redesigning the policy framework to suit to the modern era with more emphasize on new advanced technology and providing access to information more and more. Also there are no significant differences in evaluation performance of collaboration in the cloud based on age and years of experance, whereas, there is significant difference in evaluation performance of collaboration in the cloud based on professional departments ($F= 3.565$; $df=4&116$; $p<0.05$); these significant according to (library since & tourism), (library science & journalism).

The survey also helps us in great deal to indentify the areas, which has to be looked in and give more importance to provide better facilities and services to the students of library science.

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