

Digital literacy among student community in management institutes in Davanagere District, Karnataka State, India

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Institutions of higher education are responsible for preparing well-informed, skilled and globally competent workforce. They have adopted information and communication technologies (ICT) to impart digital literacy skills to their students. An understanding of the use of ICT by the students helps in framing curriculum for the digital literacy course. A study of the use of various ICT tools and web based services by 135 students, registered for 3rd Semester of Master of Business Administration course in six institutions of higher education in Davanagere district, Karnataka State was undertaken during August 2012. Questionnaire was used as the data collection tool. The findings reveal that all the respondents own personal computer, and 73.33% of them have their own Internet connectivity. Laptop, smart phone, digital camera and I-pod are the most widely used tools. Computer and laptop are used for class work, study and research through internet, while smart phone, digital camera and I-pod are used mainly for personal purpose. Web portals are considered as major source of information about companies. Open access journals and institutional repositories are used to the least extent. E-mail and Facebook are the most widely used web-based services. Only 22.96% and 02.96% of the respondents are aware of the online databases in 'Capitaline' and 'IndiaStat' respectively. There is need to sensitize them to use web resources and web based services for research and academic purposes. Majority of them agree that information is easily available on internet, but, it needs to be evaluated before use. A model curriculum is proposed to impart digital literacy skills (basic and cognitive) to the students of Master of Business Administration.

Keywords: Digital literacy, Information literacy, ICT tools, Student community, Business administration

Introduction

In today's globalized economy, possessing knowledge and having the ability to use that knowledge is critical to personal and professional advancement of individuals. Likewise, having a well informed, skilled and globally focused workforce is very essential for the success of any organization.¹ In this situation, institutions of higher education have two central responsibilities, (i) preparing their students for the challenges and opportunities brought on by globalization, and (ii) to be the major supplier of the well trained intellectual capital (knowledge workers). Higher educational institutions in advanced countries have adopted information and communication technology as a means to impart upon the students the knowledge and skills demanded by 21st century.² Information and communication technology (ICT) is defined as a 'diverse set of technological tools and resources used to create, store and disseminate information.'³ The term 'Digital Literacy' refers to the ability to use ICT tools and internet to access, manage, integrate, evaluate, create and communicate

information in order to function in a knowledge society.^{4,5} In this context, an attempt is made to understand the status of digital literacy among student community of Master of Business Administration course and propose a model curriculum to impart basic and cognitive digital literacy skills to them.

Review of literature

In India, importance of information literacy programs in digital era has been discussed in detail by Karisiddappa,^{6,9} Tella,¹⁰ Gopal Krishna,¹¹ and Rajgoli.¹² Studies related to the use of e-resources and internet by faculty members of various colleges and universities in India were undertaken by Mishra and Bulu,¹³ Joshi and Nikosh,¹⁴ and Babu et al.¹⁵ Majority of the faculty members in these studies confirmed that they most frequently use e-journals, followed by electronic theses and dissertation and e-books. E-archives, digital libraries and online databases are the least used e-resources. Search engine is the most frequently used Internet tool and e-mail is the most widely used web based service. Internet is mainly used to update their knowledge, to

support their research and to prepare for teaching. All the faculty members from the institutions under study expressed the need for organizing digital literacy training by the concerned libraries to enable them to use web resources more efficiently and effectively.

Studies related to use of internet and electronic resources by the students of various colleges and universities in India were undertaken by Tadasad et al.,¹⁶ Ramakrishnegouda and Walmiki,¹⁷ Mishra et al.,¹⁸ Kumar and Kaur,¹⁹ Biradar et al.,²⁰ Nikkam and Pramodini,²¹ Bansode and Pujar,²² Singh et al.,²³ Kaur and Verma,²⁴ Hadimani et al.,²⁵ Shyamalamba,²⁶ Sujatha,²⁷ Loan,²⁸ Konappa et al.,²⁹ Prathima,³⁰ and Sinha.³¹ Results of these studies reveal that majority of the students are familiar with the use of computer and internet resources. E-books and online reference sources such as Wikipedia are extensively used by them.²⁸ Internet use is more among teachers and students of science and commerce faculty compared to faculty of arts²⁷. Ninety percent of the students use e-mail and search engines extensively.²⁹ Students in all these studies recommended for providing more computers, better internet facility with higher bandwidth connectivity and orientation/training programme at the beginning of the course. Frequency of use of Internet is found to be more among urban students rather than rural students. However, both of them are not using e-resources like e-journals, e-books, blogs etc.³⁰.

Use of e-resources and Internet by the students of business management course was studied by Swain and Panda,³² and Bulu et al.³³ Results reveal that majority of the students have been using e-resources and internet two to four years prior to the conduct of these studies. They use internet at least once in a week and they spend at least one hour during each session. E-mail is the most frequently used web based service. E-books and e-journals are occasionally used to support their studies, while electronic theses and dissertation were never used.

It is clear from the above review that all the studies have concentrated on the use of internet and e-resources, which is part of digital literacy. A study of the use of ICT tools, web based services and digital literacy among students of 3rd semester of Master of Business Administration (M.B.A.) course, enrolled during August 2012 in six institutions of higher education in Davanagere District, Karnataka State, India was conducted and results of the study are presented in this paper.

Objectives of the study

- To identify ICT tools used by student community and purpose of using them;

- To understand about the familiarity and usefulness of Internet resources;
- To know the purpose and frequency of use of various software and web based services;
- To find the opinion of student community regarding the merits and demerits of ICT tools and web-based services.

Methodology

Many business schools in India are offering Master of Business Administration (M.B.A.) course, spread over four semesters (two years), and accredited by All India Council for Technical Education (AICTE) or University Grants Commission (UGC), New Delhi. The minimum qualification required for admission to M.B.A. course is a bachelor's degree in any discipline. The course is designed to introduce students to various areas of business such as accounting, finance, marketing, operations management etc. Davanagere district is located in the south central part of Karnataka State, India and the city of Davanagere is the headquarter town of the district. The district is well known for its higher educational institutions, including Davanagere University, established in 2009. There are six institutes of higher education in Davanagere district offering M.B.A. course. The total number of candidates admitted to the course in each institution and the number of students responded to the questionnaire is given in Table 1. Questionnaires were distributed to all the 450 students admitted to 3rd

Table 1 — Institutions covered in the study

Name of the Institute	Year of establishment	No. of students	No. of respondents
Jain Institute of Technology, Davanagere	2011	60	15
Bapuji Business School, Davanagere	2008	120	30
University BDT College, Davanagere	1951	60	15
G.M. Institute of Technology, Davanagere	2008	60	15
Kirloskar Institute of Advanced Management Studies, Harihara Davanagere	1991	120	37
Davanagere University, Davanagere	2009	30	23
Total		450	135
Percentage		100	30

Table 2 — Purpose of using ICT Tools

ICT Tool	Purpose					Total (Percent)
	Class work	Market Research	Internet access	Study	Personal work	
Laptop	84 (24.42%)	63 (18.31%)	45 (13.08%)	90 (26.17%)	62 (18.02%)	344 (100%)
Desktop	22 (22%)	16 (16%)	11 (11%)	26 (26%)	25 (25%)	100 (100%)
Notebook	4 (30.77%)	2 (15.38%)	2 (15.38%)	1 (07.70%)	4 (30.77%)	13 (100%)
Smart Phone	10 (10.6%)	4 (4.40)	20 (21.51%)	20 (21.51%)	39 (41.94%)	93 (100%)
Cell Phones	5 (6.33%)	0	20 (25.32%)	1 (1.27%)	53 (67.08%)	79 (100%)
Digital Camera	7 (12.29%)	5 (8.77%)	1 (1.75%)	3 (5.26%)	41 (71.93%)	57 (100%)
I-Pod	0	0	0	0	47 (100.0%)	47 (100%)
Total	132 (18.01)	90 (12.28%)	99 (13.51%)	141 (19.24%)	271 (36.96%)	733 (100%)
Rank	3	5	4	2	1	

Semester M.B.A. course during August 2012 and 135 students responded. The response rate is thirty percent. Students of 3rd semester were selected for the study with the assumption that they have good exposure to essential information and communication technology tools web resources and services.

Analysis

Types of computers possessed by students

Analysis shows that all the respondents own personal computer. Among them, 103 respondents (76.3%) possess laptops, 28 respondents (20.74%) possess desktop and the remaining four of them (2.96%) possess notebooks. Ninety nine respondents (73.33%) have their own internet connectivity and others use internet facility available in the college or at cyber cafe.

Purpose of using ICT Tools

Laptops and desktop computers, smart phones and cell phones are the most widely used ICT tools. Computers are used for class work, study, market research, Internet access and personal work, while smart phone, cell phone, digital camera and I-pod are used mainly for personal work by majority of the respondents (Table 2).

Online information resources

A large number of open access e-journals and institutional repositories are available on internet, which are useful for study and research. Web portals serve as a major source of information regarding company profiles. Table 3 shows that majority of the respondents are

Table 3 — Familiarity with internet resources

Internet resources	No. of respondents N = 135	Percent N = 135
Search engines	87	64.44
Subject gateways	15	11.11
Web portals	99	73.33
Digital libraries/Archives	23	17.04
Open access e-books/e-Journals	11	8.15
Institutional repositories	19	14.07

familiar with web portals and search engines. But their familiarity with other web resources such as subject gateways, open access e-journals, e-books and institutional repositories is very limited. Similar results are observed among post graduate students of business administration, Sambalpur University, India³². Hence, there is need to create awareness about these web resources among students and train them in using these web resources efficiently (Table 3).

Further, majority of the students find various types of online information resources very useful or useful (Table 4). Forty two students (29.63%) find these resources not at all useful to them. Online reference sources such as Wikipedia, conference and seminar proceedings and web portals of companies are found to be more useful compared to e-books, e-journals, institutional repositories and dissertation and theses. Information available on Facebook is rated the most useful source of information by the respondents.

Online databases

Table 5 shows that, on an average, only 14.9% of the respondents are aware of the online databases/information providers in the business

Table 4 — Usefulness of online information resources

Online information resources	Usefulness of the resources				Total
	Very useful	Useful	Sometimes useful	Not useful	
Information available on Facebook	40 (33.90%)	49 (41.53%)	22 (18.64%)	7 (05.93%)	118 (100%)
Books, Journals and Institutional Repositories	43 (37.39%)	43 (37.39%)	21 (18.26%)	8 (06.96%)	115 (100%)
Reference sources (Wikipedia etc)	50 (45.87%)	35 (32.15%)	19 (17.43%)	5 (4.58%)	109 (100%)
Dissertation & Theses	30 (26.09%)	48 (41.74%)	22 (19.13%)	15 (13.04%)	115 (100%)
Conference & Seminar Proceedings	54 (47.37%)	31 (27.19%)	23 (20.18%)	6 (05.26%)	114 (100%)
Web Portals of Companies	50 (41.32%)	49 (40.50%)	21 (17.35%)	1 (0.83%)	121 (100%)
Total	267	255	128	42	692
Rank	1	2	3	4	

Table 5 — Familiarity with Online databases/Information providers

Name of the Online database/Information provider	No. of respondents N = 135	Percent N=135
International Online databases/information providers		
Ebsco	26	19.26
Proquest	24	17.78
Datamonitor	22	16.30
McKinsey	08	05.95
MarketLine	27	20.0
India-specific online databases/information providers		
Capitaline	31	22.96
Ace Analyser	23	17.04
Indiastat	04	02.96
CMIE (Centre for Monitoring Indian Economy Pvt. Ltd)	16	11.85
Average	17.5	14.9

world. Thirty one students (22.96%) are familiar with 'Capitaline', a digital database of more than 23,000 companies in India, while 'Indiastat', India's comprehensive statistical information portal that provides recent, exhaustive, authentic socio-economic statistical analysis and yearly data is known only to four students (02.96%).

Web 2.0 Services

Over the last few years, Web 2.0 based services such as blogs, wikis, photo- and video sharing sites and online social networking sites have gained unprecedented popularity, especially, among younger generation. These networks are described as social, because they allow communication with friends and colleagues, and strengthen the ties between members of these networks on the web.^{33,34} It is observed that web 2.0 based services are used mainly for personal

purpose and for networking with friends (Table 6). E-mail is the most widely used web-based service, which is in agreement with the earlier studies.¹⁶⁻³¹ Among social networking sites, Facebook is widely used mainly for personal work and networking with friends, while Google+ is used for class work, study and for personal work. YouTube and Slideshare are the preferred means for sharing audio and video data on Internet.

It is clear that the students are conversant with the web 2.0 based services, but they are using these services mainly for personal use and for networking with friends. There is need to create awareness among them about the possibility of using these services for market research. Also, there is need to impart skills required for evaluating the information available on these websites for quality and authenticity before using it.

Frequency of use

It is clear from Table 7 that 42.9% and 20.8% of the respondents use various software and web-based services daily and at least three times in a week respectively. However, fifty two respondents (4.92%) have not used any of these applications.

Opinions on merits and demerits of ICT tools

Opinion of the students was sought regarding the merits and demerits of ICT tools and Internet (Table 8). Majority of the respondents agree for both the merits and demerits listed in the table. They agree that the information available online is current and faster access is possible, but, quality of information available is not evaluated and copyright violations are more in case of web resources.

Table 6 — Purpose of using web 2.0 based services

Name of the web-based application	Purpose for which it is used					Total (Percent)	Rank
	Class work	Market Research	Networking with Friends	Study	Personal work		
E-mail Service							
E-mail	53 (18.72%)	22 (07.78%)	54 (19.08%)	55 (19.44%)	99 (34.98%)	283 (100%)	1
Social Networking sites							
Facebook	7 (04.09%)	10 (5.85%)	64 (37.43%)	16 (09.36%)	74 (43.27%)	171 (100%)	2
Flickr	6 (15.79%)	2 (05.26%)	7 (18.42%)	6 (15.79%)	17 (44.74%)	38 (100%)	14
Twitter	4 (08.16%)	3 (06.13%)	6 (12.24%)	6 (12.24%)	30 (61.23%)	49 (100%)	12
Google+	31 (20.81%)	40 (26.85%)	22 (14.77%)	27 (18.12%)	29 (19.45%)	149 (100%)	3
Orkut	13 (17.33%)	21 (28%)	16 (21.34%)	10 (13.33%)	15 (20%)	75 (100%)	9
Web Blogs	5 (05.88%)	6 (07.06%)	33 (38.82%)	7 (08.24%)	34 (40%)	85 (100%)	6
LinkedIn	3 (04.41%)	6 (08.84%)	36 (52.94%)	8 (11.75%)	15 (22.06%)	68 (100%)	10
E-learning and Web-page creation software							
Moodle	2 (08%)	6 (24%)	3 (12%)	5 (20%)	9 (36%)	25 (100%)	15
Wiki	17 (21.52%)	24 (30.38%)	6 (07.60%)	21 (26.58%)	11 (13.92%)	79 (100%)	8
Audio – Video sharing websites							
YouTube	09 (09.68%)	10 (10.75%)	10 (10.75%)	16 (17.20%)	48 (51.62%)	93 (100%)	4
SlideShare	25 (29.07%)	30 (34.89%)	6 (06.98%)	19 (22.09%)	6 (06.97%)	86 (100%)	5
RSS Feeds	6 (11.77%)	26 (50.98%)	02 (03.92%)	10 (19.61%)	7 (13.72%)	51 (100%)	11
Podcasting (Eg.iTunes)	2 (05%)	1 (02.50%)	0	4 (10%)	33 (82.5%)	40 (100%)	13
Skype	4 (05.06%)	4 (05.06%)	20 (25.32%)	6 (07.59%)	45 (56.97%)	79 (100%)	7
Total	187 (13.64%)	211 (15.39%)	285 (20.79%)	216 (15.75%)	472 (34.43%)	1371	
Rank	5	4	2	3	1		

Note: Total may be more than 135 since same respondent can choose more than one option.

Model curriculum for imparting digital literacy skills to student community

It is clear from the findings that majority of students are conversant with ICT tools, internet resources and web 2.0 based services such as e-mail, Facebook, YouTube and SlideShare. In this regard, Littlejohn³⁵ has observed that there is no correlation between the ability to use technologies in social settings and competence in using technologies for formal higher learning. To harness the use of above mentioned technologies in an academic setting among student community, a model

curriculum is proposed. The curriculum progresses from introduction of basic ICT skills to imparting cognitive skills such as formulation of search strategy, and criteria for the evaluation of web resources.

Unit 1: Basic computer skills, operating system; Internet: tools such as www, FTP, search engines, TCP/IP, web browsers; Local library resources: OPAC/Web OPAC, Online databases (Bibliographic and full text); E-books, e- journals, electronic thesis and dissertation, Open access initiatives; web-based services: e-mail; social networking sites; RSS Feeds etc.

Table 7 — Frequency of use of software and web-based services

Software/web-based service used	Frequency of use					Total
	Every day	3-5 times per week	1-2 times per month	Rarely	Never	
Word processing software	76 (64.98%)	27 (23.08%)	07 (05.97%)	05 (04.26%)	02 (01.71%)	117 (100%)
Spreadsheet software	21 (17.65%)	29 (24.37%)	36 (30.25%)	27 (22.69%)	06 (05.04%)	119 (100%)
E-mail	100 (74.07%)	22 (16.29%)	09 (06.67%)	04 (02.97%)	00	135 (100%)
Browsing Internet	85 (69.11%)	25 (20.33%)	08 (06.50%)	05 (04.06%)	00	123 (100%)
Blogging	09 (10.59%)	26 (26.27%)	19 (20%)	33 (34.74%)	08 (08.42%)	95 (100%)
Internet chatting	43 (37.39%)	30 (26.09%)	18 (15.65%)	19 (16.52%)	05 (04.35%)	115 (100%)
Access online information resources	85 (69.1%)	25 (20.33%)	08 (06.5%)	05 (04.07%)	00	123 (100%)
Video conferencing	10 (09.09%)	19 (17.27%)	19 (17.27%)	42 (38.19%)	20 (18.18%)	110 (100%)
Computer games	25 (21.01%)	17 (14.29%)	30 (25.21%)	36 (30.25%)	11 (09.24%)	119 (100%)
Total	454	220	154	176	52	1056
Percent	42.99	20.83	14.58	16.67	04.92	99.99

Table 8 — Opinion regarding merits and demerits of ICT Tools

Opinion of the student	Strongly agree	Agree	Not sure	Disagree	Strongly disagree	Total
Merits of ICT Tools						
I enjoy using computer & internet	78	48	1	0	1	128
It is easy to carry my laptop anywhere	74	34	7	4	1	120
Current information is available on internet	57	43	10	0	1	111
Internet helps me in my studies	78	46	2	0	1	127
Information is available in short time	64	45	6	7	4	126
Copying information is easier from computer/internet	16	56	22	9	1	104
Total	367	272	48	20	9	716
Percent	51.26	37.99	6.70	2.79	0.14	
	89.25		6.70	2.93		
Demerits of ICT Tools						
I am not sure of quality of information available on internet	57	43	10	0	1	111
I like traditional system of learning	17	31	25	33	9	115
It is difficult to study for long time on computer screen/e-reader	14	58	20	24	6	122
Copyright violation is more in case of digital information	19	47	28	17	3	114
Students misuse computer and internet	15	67	21	17	6	126
Total	122	246	104	91	25	588
Percent	20.75	41.84	17.69	15.47	4.25	
	62.59		17.69	19.72		

Unit 2: Domain specific online information resources: Web-portals, Online databases available in Business and Management; Institutional Repositories; Digital Libraries; formulation of search strategy; criteria for the evaluation of online resources.

Unit 3: Introduction to Web authoring tools – Definition; types; HTML, Microsoft Frontpage, Macromedia Dreamweaver; Web authoring software; E-commerce.

Unit 4: Application of Digital competence to problem solving: current and retrospective online

literature search; designing a web portal ; use of web 2.0 based services for market research; use of SPSS or other relevant software for tabulation and presentation of results of market research, Report writing, and citation style manuals.

Conclusion

While students are competent in using latest ICT tools, and web based services such as e-mail and Facebook for personal use, their ability to use them for learning and market research is found to be

minimal. Hence, there is need to train them in basic and cognitive digital literacy skills outlined in the model curriculum, so that they can use online information resources such as online databases, digital libraries, open access e-books, e-journals and electronic theses and dissertation, institutional repositories, and web portals more efficiently in their higher learning and research. Further, criteria to be adopted to evaluate online information resources for their quality, reliability and authenticity should be introduced to the students of Master of Business Administration course to make them digital literates.

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