

## Scholarly use of social media

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The study investigates the scholarly use of social media by the doctoral students in the University of Calicut, Kerala. Structured questionnaires were used to collect data from a representative sample of 160 doctoral students. The analysis revealed that majority of the students are aware and use social media for scholarly purpose and used mainly for locating scholarly content and current awareness. Wikis and social networking sites are the most widely used social media by the students.

**Keywords:** Scholarly communication; Internet; World Wide Web; Web 2.0; Social media; Social networking sites; Doctoral students

### Introduction

The World Wide Web acts as an online platform for the creation, management and dissemination of knowledge. Social media is a broader concept which includes an array of tools including Social Networking Sites (SNS). According to Research Information Network (RIN), social media refers to the Internet services where the online content is generated by the users of the service<sup>1</sup>. User generated contents and its sharing is the core activity of these applications. It has opened up new vistas of collaboration that are not limited to time, access, place and funding.

In narrow sense scholarly communication refers to the process of publication of scholarly output. In broader sense it includes all types of communication among the peers for scholarly purpose. The rapid acceptance and use of social media in research have transformed the way the researchers communicate and disseminate information<sup>2,3</sup>. Social media helps researchers to identify and communicate with peers and share their ideas. This has boosted the collaboration among researchers. It represents a shift in the way scholars communicate, access, and disseminate information. It has special place in the

improvement of research culture and production of scholarly literature within the institutions<sup>4</sup>.

A wide variety of social media applications and platforms are available to support, enhance and showcase research. These applications can be used to provide open access to scientific knowledge and research. However, rapid technological advancement and provision of new resources and services pose serious problems to the researchers who begin to use social media<sup>5</sup>. There is increasing interest among the researchers on social media as it acts as a platform for scholarly communication<sup>6</sup>. Therefore a need was felt to assess the use of social media by researchers.

### Literature review

There have been a number of studies on the use of social media. However, the present review takes into account only the literature on the scholarly use of social media.

Procter et al<sup>6</sup> who studied the extent of adoption of the Web 2.0 in research indicated that Web 2.0. was used by majority of researchers for their research, communicating research findings, collaborating with other researchers and to know what others do in their

field of study. Tenopir, Volentine and King<sup>7</sup> examined the influence of social media on scholarly reading among the academics in the UK higher education institutions. The study found that UK academics use social media for their work related activities and the use of social media positively influences the reading pattern of the academics.

Singh and Singh<sup>8</sup> assessed the awareness and use of SNS by the doctoral students in universities in north India. The study found that all the students are aware of SNS. Facebook is used by 84 per cent of the students than any other SNS. Nicholas and Rowlands<sup>9</sup> investigated the use of social media in the process of research life cycle. The responses revealed important applications of social media in research life cycle, from identifying research problem to disseminating research results. The three tools identified in research process include collaborative authoring, conferencing and schedule meetings.

Nandez and Borrego<sup>10</sup> analyzed various aspects of social networks and its use for academic purpose among the academics and doctoral students of Catalan universities. The study found that academics used SNS to connect with other researchers, disseminate research results and to follow other researchers. Academics mainly used social media to share materials and to follow other researcher activities. Ponte and Simon<sup>11</sup> studied the acceptance of the Web 2.0 for scientific knowledge creation, education and dissemination by researchers. The results of the study revealed that there is a strong positive attitude towards the Web 2.0 enabled scholarly communication.

Al-Aufi and Fulton<sup>12</sup> investigated the extent of use of SNS by academics for informal scholarly communication. It revealed progressive use of SNS among the academics. Gu and Widen-Wulff<sup>3</sup> investigated the impact of social media on scholarly communication of academics in Finland. They found greater use of social media for different scholarly communication activities. Gruz, Staves and Wilk<sup>2</sup> investigated how and why doctoral students use social media. The study revealed increasing use of SNS for interaction, collaboration and promoting the dissemination of publication. Haneefa and Sumita<sup>13</sup> investigated the perception and use of SNS by the students of Calicut University, Kerala. The study revealed that students are aware of SNS and used it mainly for friendly communication. Lack of security

and privacy in SNS was observed as the main problems.

From the literature reviewed, it is found that studies on the use of social media for scholarly purpose in developing countries like India are limited. In this context this study was conducted to assess the scholarly use of social media by the doctoral students in Calicut University, Kerala.

## Methodology

The University of Calicut is a higher education institution which caters to the educational and research needs of the northern part of Kerala. It has more than four hundred affiliated colleges and thirty five post graduate departments.

The population of the study includes the 300 full-time doctoral students of the University of Calicut. Structured questionnaires were used to collect data from a representative sample of 160 doctoral students from different departments of the university. Out of the 160 questionnaires distributed, 108 questionnaires were returned (response rate 67.5%). The gender wise breakup of the sample shows that there were 85 (78.7 per cent) female and 23 (21.3 per cent) male doctoral students. There were 39 (36.1 per cent) students belonging to science, 30 (27.8 per cent) students of social science, 21 (19.4 per cent) students of humanities and languages and 18 (16.7 per cent) students belonging to commerce and management disciplines. The data collected were organized systematically, checked and analyzed with SPSS.

## Analysis

### Awareness and use of social media

Social media applications include blogs, microblogs, wikis, SNS, online document management tools, image and video sharing sites, presentation, video conferencing, social bookmarking and bibliographic management. It provides a participatory nature of information transfer very quickly. The students were asked to indicate their awareness and use of ten popular social media (Table 1).

It is found that higher percentages of the students are aware and use different social media except some specific applications. This is in line with the finding by Haneefa and Sumita<sup>13</sup>. Majority of the students use one or more social media tools. More than half of the

Table 1—Awareness and use of social media

Sl. no.	Social Media Applications	Don't Know	Aware	Used
1	Blogs	11 (10.2%)	64 (59.3%)	33 (30.6%)
2	Microblogs (e.g. Twitter)	64 (59.3%)	34 (31.5%)	10 (9.3%)
3	Wikis (e.g. Wikipedia)	10 (9.3%)	11 (10.2%)	87 (80.6%)
4	Social Networking Sites (e.g. Facebook)	3 (2.8%)	14 (13.0%)	91 (84.3%)
5	Online Document Management (e.g. GoogleDocs, Scribd)	32 (29.6%)	25 (23.1%)	51 (47.2%)
6	Image and Video Sharing Sites (e.g. YouTube, Flickr)	16 (14.8%)	30 (27.8%)	62 (57.4%)
7	Presentation Sharing Sites (e.g. Slideshare, Slideboom)	17 (15.7%)	29 (26.9%)	62 (57.4%)
8	Video Conferencing/Messaging (e.g. Skype, Hangouts)	17 (15.7%)	43 (39.8%)	48 (44.4%)
9	Social Bookmarking (e.g. Delicious)	42 (38.9%)	39 (36.1%)	27 (25.0%)
10	Bibliographic Management (e.g. Zotero, Mendeley)	24 (22.2%)	42 (38.9%)	42 (38.9%)

students don't know about microblogs and good number of the students don't know social bookmarking. Social networking sites and wikis were found to be the most popular social media applications perhaps because they provide an interface for easy sharing of information.

#### Reasons to use social media

There are several reasons to use social media for scholarly communication. It depends on the purpose of use and the features of the social media applications. Scholars depend on social media as it is easy to build new connections, disseminating research results and collaborating in research<sup>2</sup>. The responses on their use of social media are given in Table 2.

It is found that the major reasons of the use of social media are to connect with other researchers (81.5 per cent) and to follow other researchers' activities (64.8 per cent). It indicates that social media is a useful tool to interact with peers, share ideas and disseminate output. Nandez and Borrego<sup>10</sup> too indicate the use of social media applications to get in touch with other researchers and to disseminate research results. Social Media applications like ResearchGate and Academia.edu provide a very easy to use interface for sharing research.

#### Social media activities

The various social media applications identified in Table 1 can be used in different ways including keeping up to date, searching, discussing, communicating, writing and commenting. The students were asked to indicate their use of specific social media applications. Since multiple answers were permitted students were asked to select one or more responses. The responses are given in Table 3.

It is seen that majority of the students (56.5 per cent) use SNS to keep them up-to-date. Majority (75 per cent) of the students use Wikis for searching information. Only a few (39.8 per cent) students use SNS for discussions. More than half (55.6 per cent) of the students use SNS for communication. Very few students use microblogs for scholarly purpose. The doctoral students mainly use social media for searching scholarly materials in their field and to keep up-to-date themselves. The use of social media for discussion, writing and commenting is comparatively low.

#### Use of social media in research

Social media is used by the doctoral students in different stages of their research. The intensity of social media use may vary according to preferences of

Table 2—Reasons to use social media

Sl. no.	Reasons	Responses (N=108)
1	To get in touch with other researchers	88 (81.5%)
2	To follow other researchers activities	70 (64.8%)
3	To collaborate with other researchers	33 (30.6%)
4	To disseminate research results	30 (27.8%)

Table 3—Social media activities

Sl. no.	Social Media	Keeping up to date	Searching	Discussing	Communicating	Writing	Commenting
1	Blogs	23 (21.3%)	24 (22.2%)	8 (7.4%)	12 (11.1%)	8 (7.4%)	10 (9.3%)
2	Microblogs (e.g. Twitter)	4 (3.7%)	3 (2.8%)	3 (2.8%)	3 (2.8%)	5 (4.6%)	2 (1.9%)
3	Wikis (e.g. Wikipedia)	37 (34.3%)	81 (75%)	11 (10.2)	5 (4.6%)	12 (11.1%)	2 (1.9%)
4	Social Networking Sites (e.g. Facebook)	61 (56.5%)	58 (53.7%)	43 (39.8)	60 (55.6%)	29 (26.9%)	36 (33.3%)
5	Online Document Management (e.g. GoogleDocs, Scribd)	23 (21.3%)	35 (32.4%)	10 (9.3%)	3 (2.8%)	9 (8.3%)	2 (1.9%)
6	Image and Video Sharing Sites (e.g. YouTube, Flickr)	28 (25.9%)	48 (44.4%)	6 (5.6%)	16 (14%)	13 (12%)	7 (6.5%)
7	Presentation Sharing Sites (e.g. Slideshare, Slideboom)	29 (26.9%)	51 (47.2%)	9 (8.3%)	11 (10.2%)	10 (9.3%)	3 (2.8%)
8	Video Conferencing/Messaging (e.g. Skype, Hangouts)	20 (18.5%)	22 (20.4%)	25 (23.1)	30 (27.8%)	7 (6.5%)	11 (10.2%)
9	Social Bookmarking (e.g. Delicious)	20 (18.5%)	31 (28.7%)	7 (6.5%)	4 (3.7%)	2 (1.9%)	4 (3.7%)
10	Bibliographic Management (e.g. Zotero, Mendely)	23 (21.3 % )	31 (28.7%)	5 (4.6%)	5 (4.6%)	18 (16 %)	2 (1.9%)

the students. Nicholas and Rowlands<sup>9</sup> identified social media use in different stages of research. The stages are; identifying research opportunities, finding collaborators, securing funding support, reviewing literature, collecting research data, analyzing research data, disseminating findings and managing the research process. The identified stages were used in the questionnaire with minor adaptations. Responses are given in Table 4.

According to group mean scores received for the use of social media in research process, reviewing the research literature (mean=3.31) was indicated as the leading purpose for using social media, followed by collecting research data (mean=3.17), research

collaboration activities (mean=3.09), and identifying research opportunities (mean=3.06). Other research activities received less than the three group mean scores. A large standard deviation (SD=1.038) was observed against analyzing research data which was observed. The analysis reveals a positive level of agreement among the doctoral students on the perceived use of the social media for scholarly purpose. It is extremely useful in early stages of research and moderately useful in later stages of research. It reveals that social media is more used in primary stages of research and less used in later stages of research. This may be due to lack of awareness and lack of popularity of social media applications for

Table 4—Use of social media in research

Sl. no.	Stages/Functions	Not at all useful	Slightly Useful	Moderately useful	Extremely useful	Mean	Std. Deviation
1	Identify research opportunities	4 (3.7%)	24 (22.2%)	42 (38.9%)	38 (35.2%)	3.06	.852
2	Research collaboration activities	3 (2.8%)	22 (20.4%)	45 (41.7%)	38 (35.2%)	3.09	.815
3	Reviewing the research literature	7 (6.5%)	11 (10.2%)	31 (28.7%)	59 (54.6%)	3.31	.903
4	Collecting research data	5 (4.6%)	17 (15.7%)	41 (38%)	45 (41.7%)	3.17	.859
5	Analysing research data	14 (13%)	34 (31.5%)	27 (25%)	33 (30.6%)	2.73	1.038
6	Disseminating research findings	12 (11.1%)	30 (27.8%)	36 (33.3%)	30 (27.8%)	2.78	.980
7	Managing research process	12 (11.1%)	35 (32.4%)	40 (37%)	21 (19.4%)	2.65	.920

Table 5—Disciplinary differences in the use of social media

		Sum of Squares	Df	Mean Square	F	Sig.
Use of Social Media	Between Groups	6.691	3	2.230	4.809	.004
	Within Groups	48.226	104	.464		
	Total	54.917	107			

research analysis, dissemination and management. This finding support the study of Cruz<sup>4</sup> regarding the use of social media in research cycle.

#### Disciplinary differences in the use of social media in research

Disciplinary and local cultures have strong influence on the adoption and use of information and communication technology for scholarly activities<sup>6</sup>. A one-way analysis of variance (ANOVA) test was conducted to test the disciplinary difference in the use of social media. The major disciplinary areas identified were science, social science, arts & humanities and commerce & management. Disciplines were taken as independent variables and each mean score of usefulness of social media in research were taken as dependent variables. Summary of the test is given in the Table 5.

The significant value, p (denoted by “Sig.”) is 0.004. The p value is less than 0.05 and it indicates that there is a statistically significant difference between disciplinary groups in the use of social media as determined by one way ANOVA ( $F(3,104)=4.809$ ,  $p=0.004$ ).

#### Perceived benefits of social media

The doctoral students perceive a number of benefits associated with social media. Academics acquainted with social media can perform a variety of information practices<sup>3</sup>. The students were asked to indicate the perceived benefits of social media and the responses are summarised in Table 6.

The analysis shows an overall positive agreement towards the benefit of social media for scholarly use. Group mean score received for the benefit of social media reveals that staying updated regarding current research (mean=4.20) received higher mean score, followed by quick information dissemination (mean=4.05), share materials easily (mean=4.06), access to more research content (mean=4.03) and accelerates the phase of research (mean=4.01). Larger standard deviation was observed for the perception that social media helps in rapid information dissemination ( $SD=1.106$ ) and attract more citations ( $SD=1.036$ ).

The analysis shows that there is a relatively strong agreement that social media applications benefit in scholarly activities. This study confirms the findings

Table 6—Benefits of social media

Sl. no.	Benefits	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation
1	Accelerate the phase of research	-	1 (.9%)	20 (18.5%)	64 (59.3%)	23 (21.3%)	4.01	.663
2	Updating with current research	1 (.9%)	2 (1.9%)	11 (10.2%)	54 (50%)	40 (37%)	4.20	.770
3	Quick information dissemination	2 (1.9%)	2 (1.9%)	25 (23.1%)	47 (43.5%)	30 (27.8%)	4.05	1.106
4	Edit material quickly and easily	-	7 (6.5%)	30 (27.8%)	47 (43.5%)	24 (22.2%)	3.81	.855
5	Share material easily	-	5 (4.6%)	16 (14.8%)	54 (50%)	33 (30.6%)	4.06	.800
6	Capacity of maintain professional image	-	5 (4.6%)	39 (36.1%)	45 (41.7%)	19 (17.6%)	3.72	.807
7	Capacity of promoting work online	2 (1.9%)	4 (3.7%)	36 (33.3%)	47 (43.5%)	19 (17.6%)	3.71	.865
8	Higher visibility of research work	1 (.9%)	3 (2.8%)	28 (25.9%)	51 (47.2%)	25 (23.1%)	3.88	.862
9	Attract more citation	3 (2.8%)	9 (8.3%)	30 (27.8%)	37 (34.3%)	29 (26.9%)	3.74	1.036
10	Access to more research content	1 (.9%)	2 (1.9%)	24 (22.2%)	47 (43.5%)	34 (31.5%)	4.03	.837

of Gu and Widen-Wuff<sup>3</sup>, Procter et al<sup>6</sup>, Nicholas and Rowlands<sup>9</sup> and Al-Aufi & Fulton<sup>12</sup>.

#### Barriers to use social media

There are several concerns when it comes to adopting social media applications in scholarly communications. Quality of information poses a serious challenge in the use of social media for scholarly communication<sup>14</sup>. Privacy is another serious problem in the use of social media in academic practices<sup>2,13</sup>. The students were asked to indicate the barriers they face while using social media for scholarly communication. Likert scale was used to measure the responses of the students. The summary of the responses are presented in Table 7.

The highest mean score was recorded for copyright issue (mean=3.57), followed by lack of privacy and security (mean=3.56). The lowest mean score was recorded for lack of university encouragement (mean=3.27), lack of citations (mean=3.26), lack of technical support (mean=3.22) and time consuming (mean=3.15). The analysis shows a larger standard

deviation in the mean of time consuming (SD=1.244) and lack of confidence (SD=1.069). Copyright and security issues, lack of citation, technical support etc., are some of the major barriers. Social media being time consuming, lack of confidence, and lack of content quality also acts as hindrances in equal measures.

#### Conclusion

Social media are very effective to support, enhance and showcase research. It is found that a majority of the doctoral students are aware of and use social media for scholarly purpose. However, it is revealed that the awareness and use of social media among the students is confined to the popular social media applications. Awareness of research specific platforms such as Kudos, myExperiment, Labfolder, MyNetResearch, ResearchGate, and Mendeley are limited. It is found that there is a significant disciplinary difference in the scholarly use of social media among the students. Discipline specific social media platforms like BiomedExperts increase the scholarly use of social media in Science.

Table 7—Barriers to use social media

Sl. no.	Problems/ Barriers	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation
1	Time consuming	8 (7.4%)	33 (30.6%)	21 (19.4%)	27 (25%)	19 (17.6%)	3.15	1.244
2	Lack of quality contents	4 (3.7%)	24 (22.2%)	44 (40.7%)	29 (26.9%)	7 (6.5%)	3.10	.947
3	Copyright issue	-	6 (5.6%)	48 (44.4%)	40 (37%)	14 (13%)	3.57	.788
4	Lack of citations	1 (.9%)	16 (14.8%)	52 (48.1%)	32 (29.6%)	7 (6.5%)	3.26	.825
5	Lack of privacy and security	2 (1.9%)	10 (9.3%)	38 (35.2%)	41 (38%)	17 (15.7%)	3.56	.930
6	Lack of technical support	4 (3.7%)	22 (20.4%)	37 (34.3%)	36 (33.3%)	9 (8.3%)	3.22	.989
7	Lack of confidence	7 (6.5%)	20 (18.5%)	44 (40.7%)	29 (26.9%)	5 (4.6%)	3.13	1.069
8	Lack of university encouragement	4 (3.7%)	14 (13%)	53 (49.1%)	23 (21.3%)	14 (13%)	3.27	.973

This study emphasizes the need of popularizing social media among the students as it positively influences the research activities. The students can interact with peers, share their ideas and disseminate their output to maximise the visibility and impact of their research. Social media can also be used to provide a publication outlet for researchers who have difficulty in getting published in high ranking journals<sup>16</sup>. Students should be aware of the opportunities and challenges of social media for scholarly communication. It is also essential to take initiatives to do research on the impact of social media applications in scholarly communication.

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