

A Study on Reasons for Usage of Social Networking Sites and Its Impact on the Academic Performance of Engineering Students with Special Reference to Krishna and Guntur Districts, Andhra Pradesh

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Abstract

The purpose of the present research is to identify reasons for usage of social networking sites and its impact on the academic performance of engineering students in Krishna and Guntur districts, Andhra Pradesh. For the purpose of the present study, a well-structured questionnaire was used to collect the data. On the basis of stratified random sampling, 2400 students were chosen for the present study. 98% of the questionnaires were received from the respondents. Descriptive statistics and Neural network analysis were done to analyse the data. The results indicated that engineering students used social networking sites because they were strongly influenced by their friends and also they wanted to get connected with their friends. Findings also revealed that engineering students used social networking sites because it is easier for them to chat through text from mobile devices by making use of certain features like sending images, and videos. The major finding showed that a good number of engineering students used social networking sites for academic purposes such as sharing resource materials, make an appointment with the concerned faculty in order to share the ideas regarding projects, assignments, content creation, additional learning such as exam preparation, course task, and seminars, video sharing, do have influence on their academic performance. The present study, hence, recommends that college/educational institute should encourage teachers to integrate social networking sites into their classrooms, homework, and projects.

Keywords: Social Networking Sites, Reasons for Usage, Academic Performance, Students.

Introduction

Social networking sites such as Facebook, Twitter, LinkedIn, YouTube, Skype, etc. have been accessed by millions of users in India. Many users of social networking sites get access through computer and mobile phones as well. Social networking sites enable people to share thoughts, ideas, upload and download videos, request to invite, text messages, blogs, share photos, audios and videos, group discussion and more. Therefore, it became a part of everyday life of many Indians. It has been noticed that youngsters are more prone to use social networking sites.

Need for the Study

Studies done on social networking sites have highlighted that approximately 85% of undergraduate students spend thirty minutes to three hours every day on social networking sites spend less time on studies. It has been found that students have started relying more on the information accessed easily on these social networking sites. This reduces their learning and research capabilities. In

India, the studies on social networking sites were limited. Researchers have focused their attention on this topic only from 2012 onwards. A comprehensive research on reasons for usage of social networking sites and its impact on academic performance of undergraduate students i.e., specially engineering students was lacking in India. Hence, it was felt that there was a need to undertake a systematic research on reasons for usage of social networking sites and its impact on academic performance of engineering students in India in general and Andhra Pradesh in particular. The present study was intended to fulfill this requirement.

Statement of the Problem

Students mostly used slang words, or shortened forms of words in social networking sites. They started relying on the computer grammar and spelling check features. This reduced their command over the language and their creative writing skills. The students' motivational level also reduced due to the excessive use of social networking sites. They rely on the virtual environment instead of gaining practical knowledge of the real world. Students who use it during class will pay just a little attention to what the lecturers say. Students who miss their lectures will perform least in their academics.

Objectives of the Study

The following objectives were taken up for the present study.

- To identify reasons for usage of social networking sites among engineering students in Krishna and Guntur districts, Andhra Pradesh.
- To evaluate the impact of social networking sites on the academic performance of engineering students.

Review of Literature

Gupta, Singh & Marwaha (2013), "found that the majority of the students accessed various social networking sites for sharing information and personal connection. The academic performance of the students was found to be independent of the use of Facebook, as a social networking sites tool for academic purpose".

Raj Kumari Kalra & Preeti Manani (2013), "examined the impact of the utilisation of social networking sites on the academic accomplishments of the students. The result revealed that students managed their time efficiently. Hence, the use of social networking sites didn't harmed their academics".

Shivani Arora (2014), "identified that most of them used social networking sites for very less time i.e., 60 minutes, some of them used it for 1-2 hours, few of the students used social networking sites for 2-3 hours and very few respondents used the social networking sites for more than 3 hours. Majority of respondents checked Facebook before going to sleep".

Mangesh, R. Balpande, Deven Ketkar & Mahesh Patil (2017), "found that through social networks, microblogging, internetlogs, magazines, internet discussions, social sites, photos, video, and so forth. Students communicated conclusions about an assortment of topics and spread by means of

social networking sites”.

Gurdeep Singh & Dr. Richa Malhotra (2018), “revealed that 89.29percent of the students visited social networking sites with a specific purpose in mind. 76.43percent of the students used as a platform to represent their thoughts. 73.57percent of respondents believed that these sites were helpful for their studies”.

Research Methodology

Sample Description

Population

The target population for the present study contains 1,09,063 engineering students studying various B.Tech. courses offered in all engineering colleges located in Krishna and Guntur districts of Andhra Pradesh. The population is finite in nature.

Sample Size

For the purpose of current research 3000 questionnaires were administered to a total of 37 engineering college students which constituted 16 engineering colleges from Krishna district and 21 engineering colleges from Guntur district. So the total sample for the present study consisted of 2384 engineering students, out of which 698 were from ECE branch, 322 from EEE, 809 from CSE, 159 from IT, 302 from ME, 94 from CE branches. So, the sample size chosen for the study constituted of 2384 engineering students which is approximately 2percent of the population.

Sampling Method

Stratified Random Sampling method was employed to obtain a representative sample from the population. The selected sample comprised of both boy and girl students between the ages of 19-22 years.

Limitations of the Study

The following are the major limitations of the present study.

- The sample for the present study was limited to engineering colleges in Krishna and Guntur districts only. The findings of the study cannot be generalised to other districts of Andhra Pradesh.
- The reliability of the study cannot be guaranteed as a similar study in another context might yield different results.
- The responses of the sample could be subjective as the instrument employed is a self-report questionnaire.
- Time was another constraint as the students were busy with their academic schedule.
- The sample size was limited to approximately 2 percent of the population only.

Tools Employed

Media and Technology Usage and Attitude Scale

Media and Technology Usage and Attitude Scale was developed by Rosen et. al (2013). The scale consists of 60 items which were divided into 15 subscales, 11 measuring usage were scored on a 10-point Likert-type scale and four assessing attitudes were scored on a 5-point Likert-type scale.

Table 1 Reliability Statistics for the Tool Used

	Cronbach’s Alpha	No. of Items
Reasons for usage of social networking sites	0.871	24

Analysis of Data

Data was analysed by using descriptive statistics and inferential statistics. Statistical Package for Social Sciences i.e., SPSS version 21 was used for analysis of data.

- Means and Standard Deviations were computed for the scale, i.e., Reasons for use of social networking sites.
- Neural Network Analysis was done to study the reasons for usage of social networking sites and its impact on the academic performance of engineering students.

Usage of Social Networking Sites

Table 2 Distribution of the Total Sample based on High, Medium and Low Usage of Social Networking Sites

Level of Usage of social networking sites	High Usage	Medium Usage	Low Usage
No. of Respondents	952	1100	332
Percentage	40	46	14

From the table2, it can be observed that 40percent of the sample were high users of social networking sites, 46percent of the sample were medium users of social networking sites and 14percent of the sample were low users of social networking sites.

Users of Social Networking Sites

Table 3 Cross Tabulation of Year of Study on Users of Social Networking Sites

Year of Study		Users of Social Networking Sites			
		High	Low	Medium	Total
I-B.Tech.	Count	202	51	199	452
	percent within Count	8.47%	2.13%	8.34%	18.95%
II-B.Tech.	Count	330	69	238	637
	percent within Count	13.84%	2.89%	9.98%	26.71%
III-B.Tech.	Count	340	44	298	682
	percent within Count	14.26%	1.84%	12.5%	28.60%
IV-B.Tech.	Count	288	46	279	613
	percent within Count	12.08%	1.92%	11.70%	25.71%
Total	Count	1160	210	1014	2384
	percent within Count	48.65%	8.80%	42.53%	100%

From the table 3, it has been observed that out of 2384 students, highest count of 1160 (about 48.65percent) engineering students agreed that they were high users of social networking sites. Among all years of study, 14.26percent of the engineering students in III year agreed that they were heavy users of social networking sites. With reference to the table 3, 2.89percent of II year engineering students were low users of social networking sites but 91percent of the III year engineering students were using social networking sites at a high rate.

Objective

To identify reasons for usage of social networking sites among engineering students in Krishna and Guntur districts, Andhra Pradesh.

Means and Standard Deviations for each individual item in the scale were computed.

Table 4 Means and Standard Deviations of Reasons for Usage of Social Networking Sites

S.No	Item	Mean	Standard Deviation
1	Most of my friends use it	4.02	0.913
2	Chatting	3.93	1.011
3	Information sharing	3.91	1.034
4	Making comments on friends	3.87	0.968
5	Making academic discussion groups	3.87	1.007
6	Downloading music / video	3.82	1.034
7	Receiving and sending messages	3.80	1.071
8	Playing games	3.77	1.035
9	Effective tool for e-learning	3.77	1.067
10	Sports News	3.76	1.063
11	Uploading or sharing music / video	3.75	1.085
12	Communicating with friends about academic interests	3.74	1.034
13	Others	3.71	1.162
14	Communicating with faculty members	3.70	1.028
15	Phonography	3.67	1.089
16	Entertainment	3.67	1.152
17	Making dubs mash	3.66	1.142
18	Status Update	3.63	1.101

19	Sharing files	3.62	1.153
20	Creating polls/quizzes or surveys	3.53	1.111
21	Watching movies	3.51	1.339
22	Comments/Wall post	3.41	1.205
23	Posting photos	3.40	1.144
24	Blogging	3.39	1.156
	Overall Mean and Standard Deviation	3.7045	1.0876

From the results of the table 4, it can be inferred that,

- The highest mean score of 4.02 was observed for the statement ‘Most of my friends use it’. The respondents used social networking sites because they were strongly influenced by their friends and they also wanted to get connected with their friends.
- The second highest mean score for the statement ‘Chatting’ is 3.93 which revealed that the respondents used social networking sites because it is easier for them to chat through text from mobile devices by making use of certain features like sending images, and videos.
- The next highest mean score of 3.91 for the statement ‘Information Sharing’ which revealed that the respondents used social networking sites for sharing personal information and also to share their interests on various topics.
- The mean score for the statement ‘Making comment on friends’ is 3.87 which showed that the respondents used social networking sites to make comments on their friends in social networks reinforced i.e., development of social skills and thereby expands social circle.
- The next highest mean score was observed for the statement ‘Making academic discussion groups’ i.e., 3.87 followed by downloading music/video (3.82), receiving and sending messages (3.80) which showed that the respondents used social networking sites for the purpose of making academic discussions by forming group in social networking sites which might help them in their studies and also for downloading music and sending messages.
- The mean score for the statement ‘Comments/Wall post’ is 3.41 was less which showed that the respondents did not use social networking sites much for communicating with their friends by posting a comment on a friend’s profile, page, or wall.
- The mean score for the statement ‘Posting photos’ is 3.40 which was less showed that few respondents used social networking sites to expose themselves by sharing photos with their community.
- The mean score was observed for the statement ‘Blogging’ i.e., 3.39 which showed that the respondents used social networking sites less for creating blogs which allow students to multi-faceted learning and

promote literacy and sharpen writing skills.

Preference of Social Networking Sites

Table 5 Distribution of Total Sample on the basis of Preference of Social Networking Sites

Preference of Social Networking Sites	Yes	No	Total percent
Facebook	56.7%	43.3%	100%
LinkedIn	19.9%	80.1%	100%
Twitter	14.1%	85.9%	100%
YouTube	49.8%	50.2%	100%
WhatsApp	66.5%	33.5%	100%
Instagram	51%	48%	100%
Snapchat	16.2%	83.8%	100%
Google Plus	17.5%	82.5%	100%
Others	10.4%	89.6%	100%

From the table5, it can be inferred that, 56.7percent preferred to use Facebook, 66.5percent of the respondents preferred to use WhatsApp, 51percent of the respondents preferred to use Instagram, 49.8percent majority of the respondents preferred to use YouTube, 19.9percent of the respondents preferred to use LinkedIn,17.5percent of the respondents preferred to use Google Plus, 16.2percent of them preferred to use Snapchat, 14.1percent of the respondents preferred to use Twitter, only very few respondents i.e., 10.4percent preferred to use other social networking sites. Hence, it can be inferred from the above table that the majority of the respondents preferred to use Facebook followed by WhatsApp, and Instagram.

Objective- To evaluate the impact of social networking sites on the academic performance of engineering students.

Neural Network Analysis was computed to ascertain and identify the most significant reasons

for usage of social networking sites that have an impact on the academic performance of engineering students.

The following hypothesis was framed for the present study.

- **H₀** Usage of social networking sites does not have any significant impact on the academic performance of engineering students.
- **H_a** Usage of social networking sites have significant impact on the academic performance of engineering students.

Network Information

Table 6 Network Information

Input Layer	Factors	1	Making comments on friends
		2	Most of my friends use it
		3	Receiving and sending messages
		4	Playing games
		5	Sharing files
		6	Communicating with faculty members
		7	Communicating with friends about academic interests
		8	Making academic discussion groups
		9	Downloading music / video
		10	Uploading or sharing music /video
		11	Posting photos
		12	Blogging
		13	Creating polls/quizzes or surveys
		14	Effective tool for e-learning
		15	Watching movies

		16	Making dubsplash
		17	Information sharing
		18	Chatting
		19	Entertainment
		20	Phonography
		21	Sports news
		22	Status update
		23	Comments/Wall post
Hidden Layers	Number of Units ^a	116	
	Number of Hidden Layers	1	
	Number of Units in Hidden Layer 1 ^a	13	
	Activation Function	Hyperbolic tangent	
	Dependent Variables	Social networking sites impact on academic Performance	
Output Layer	Number of Units	1	
	Rescaling Method for Scale Dependents	Normalized	
	Activation Function	Sigmoid	
	Error Function	Sum of Squares	

a. Excluding the Bias Unit

The table 6 shows neural network information, including the dependent variable, number of input and output layers and their units, number of hidden layers and their units, and the activation functions used. There were twenty three independent variables viz. chatting, making comment on

friends, downloading music / video, receiving and sending messages, playing games, sports news, uploading or sharing music / video, phonography, entertainment, making dubsmash, status update, watching movies, comments/wall post, posting photos, blogging, information sharing, making academic discussion groups, e-learning, communicating with friends about academic interests, communicating with faculty members, sharing files and creating polls / quizzes, or surveys. Dependent variable taken was social networking sites impact on academic performance.

Automatic architecture selection choose one hundred and sixteen nodes for input layer, thirteen nodes for the hidden layer, and one node to code the dependent variable course outcome. For the hidden layer, the activation function was the 'Hyperbolic tangent', while for the output layer used the 'Sigmoid' function. Sum of Squares was used as error function because 'Sigmoid' function was applied.

Model Summary

Table 7 Model Summary of Dataset using Neural Network

Training	Sum of Squares Error	7.182
	Relative Error	.636
	Stopping Rule Used	1 consecutive step(s) with no decrease in error ^a
Testing	Training Time	0:00:01.60
	Sum of Squares Error	4.277
	Relative Error	.753

Dependent Variable: Social networking sites impact on academic performance

a. Error Computations are based on the Testing Sample

The model summary, shown in the table7, provides information related to the results of training and testing sample. The best number of hidden units is determined by the smallest error. From the above table of model summary, it can be observed that the value of error was low. Hence, the above model suggests the best number of hidden layers.

The table 7 is the representation of a sensitivity analysis, which computes the importance of each predictor in determining the neural network. The analysis is based on the combined samples of training and testing, or only on the sample of training if there is no sample of testing. This creates a table and chart that shows importance for each predictor and normalized importance.

Variable Importance

Table 8.Variable Importance

Reasons for usage of social networking sites	Importance	Normalized Importance
Making friends	.047	73.3percent
Most of the friends use it	.064	100.0percent
Receiving and sending Messages	.046	71.0percent
Playing games	.032	49.1percent
Sharing files	.052	81.3percent
Communicating with faculty	.057	88.2percent
Communicating with friends on academics	.060	93.7percent
Making academic discussion groups	.036	55.7percent
Downloading music / video	.026	41.1percent
Uploading music / video	.041	64.0percent
Posting photos	.034	52.5percent
Blogging	.054	83.1percent
Creating polls / quizzes	.046	70.7percent
Effective tools for e-learning	.030	47.2percent
Watching movies	.044	69.0percent
Making dubsplash	.063	97.6percent
Information sharing	.033	50.6percent
Chatting	.053	81.5percent
Entertainment	.027	42.3percent

Reasons for usage of social networking sites	Importance	Normalized Importance
Photography	.042	65.0percent
Sports news	.027	41.5percent
Status update	.029	44.8percent
Comments / wallpost	.057	88.1percent

The table A.8 explains the impact of each independent variable in the Neural Network model in terms of relative and normalized importance. The importance of an independent variable is a measure of how much value changes of the independent variable predicted by the network model. Normalized importance is the importance value divided by the largest importance value and is expressed as a percentage.

Normalized Importance

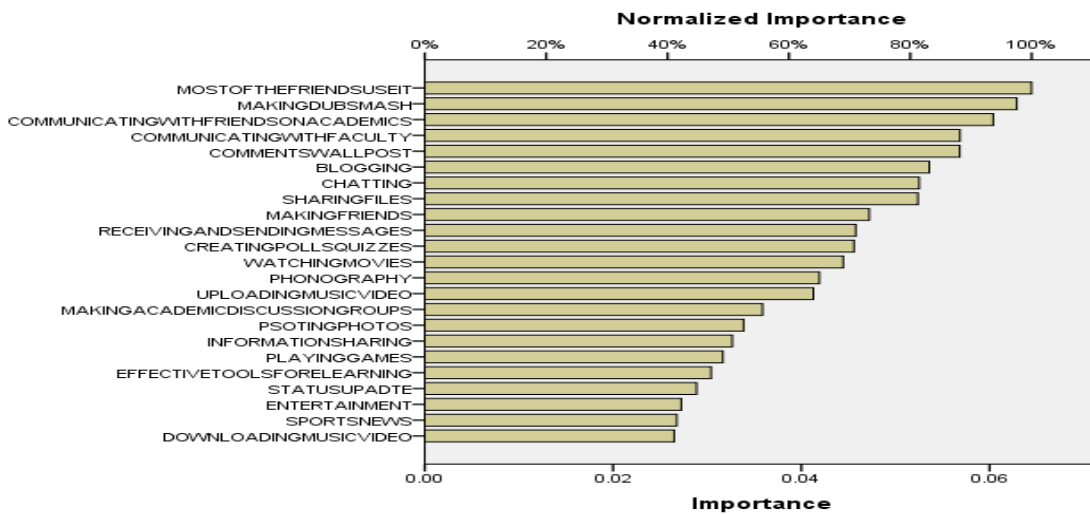


Figure 1 Normalized Importance

From the results of the fig 1, it can be inferred that

- Most of their friends use it’ revealed 100percent impact of social networking sites on the academic performance of engineering students.
- 97.6percent of the impact of social networking sites on academic performance was caused by ‘Making

dubsmash’.

- ‘Communicating with friends on academics’ showed 93.7percent impact on academic performance.
- ‘Communication with faculty’ caused 88.2percent impact on academic performance.
- ‘Entertainment’ accounted for 42.3percent impact on academic performance.
- ‘Sports news’ showed 41.5percent impact on academic performance.
- ‘Downloading music/video’ revealed 41.1percent impact on academic performance of engineering students.

Results and Discussion

Reasons for usage of Social Networking Sites

It was observed from the above results that the higher mean scores were recorded by engineering students with respect to non-academic purposes such as chatting, making comment on friends, downloading music/video, receiving & sending messages, playing games, sports news, uploading or sharing music/video, phonography, entertainment, making dubsmash, status update, watching movies, comments/wall post, posting photos rather than for academic purposes such as information sharing, making academic discussion groups, e-learning, communicating with friends about academic interests, communicating with faculty members, sharing files and creating polls/quizzes, or surveys or blogging.

Students wanted to connect emotionally with the outside world and socialise themselves with existing friends. So, this prompted students to use social networking sites especially, for entertainment purpose as it is provided for free of charge. Social networking sites make it easier for students joining groups and make friends online with others who share his/her particular interests. Students were found to express their emotions, or thoughts through posting information about their interests. They can learn others’ thoughts from their comments and reform themselves by these comments. With the usage of social networking sites, they can stay up-to-date with what their friends are doing, and also let them know what is happening in his/her life, using words, photos, etc. The interactivity of social networking site allows for public discussions online, such as local issues, politics, and current events.

The manufacturing and distribution of sophisticated mobile phones had complicated the situation, as students no longer need to visit a cybercafé for sending and receiving messages. Attention had been shifted from visible to invisible friends, thus, studies and writing skills had been affected in the process.

Impact of Social Networking sites on Academic Performance

From the above results, it was inferred that a good number of engineering students were using social networking sites for academic purposes. Students used social networking sites as an interactive platform for academic communication such as an academic resource sharing of materials, video sharing, information dissemination do have positive influence on their academic performance. Students used social networking sites to make an appointment with the concerned faculty in order to share the ideas regarding projects, assignments, content creation, additional learning such as exam preparation, course task, and seminars, and making academic discussions based on educational interest which helped them

in the improvement of their academic performance.

Suggestions

- The present study results indicated that a high mean score of 3.93 was recorded by engineering students' use of social networking sites for 'Chatting'. Today's corporate world is recruiting the candidates who are highly proficient in these technologies. Students are using pidgin language, commit errors in English grammar while chatting with their friends. The present study recommends that students should avoid usage of short phrases or short forms of words or making grammatical errors in social networking sites like Facebook, LinkedIn, and Twitter. Students should also keep their posts in a professional manner. It is significant for the student to furnish the correct information on social networking sites which recruiters view before hiring.
- The present study results revealed that there was high impact of social networking sites on the academic performance of engineering students. The present study recommends that students should extensively make use of internet sources like e-journals, e-books for research and academic work. The present study recommends that social networking sites can be expanded and new pages should be created to enhance academic activities to avoid setbacks in the students' academic performance. The present study also recommends students to form online communities in order to plan for a project, or use social networking sites to provide updates on current academic information for absentees.
- It was observed from the results that 'Communication with faculty' accounts for 88.2percent impact on academic performance of engineering students. The present study recommends that college/educational institute should encourage teachers to integrate social networking sites into their classrooms, home work, and projects. The simplest application could be to remind students of class assignments, and to drop ideas for discussions. Such engagement will no doubt improve the delivery of curriculum in an innovative way and accommodate new directions in teaching that focus on "student-directed" learning style.
- Curriculum developers are advised to integrate blogging into the curriculum, so that students' literacy skills and students' level of engagement will improve. A blog can help students in doing projects, assignments and seminars. Students will be motivated to use it for productive purpose.
- Rural students don't have adequate internet facilities in their localities to share information and resource materials with friends. The present study recommends that the government ought to organise better internet facility in rural and concrete areas and intend the college students to exploit internet for the aim of education.

Suggestions for Future Research

The results of the study examined many aspects related to the usage of social networking sites by engineering students; however, there are several areas that need to be addressed in future research by other researchers.

The relationship between the use of social networking sites and the academic performance of students belonging to different professional groups.

The present study serves as a basis for further research on social networking sites and the

academic performance of engineering students. Similar studies should be conducted in other districts of Andhra Pradesh and in other professional courses so as to bring about improvement in the academic performance of students through the use of social networking sites, and to create more pages for research and academic activities, thereby, avoiding distraction which leads to deviation from their academic works.

Comparison between Postgraduate and Undergraduate Students

A comparative analysis with a larger sample of students comprising both graduate and undergraduate students may be conducted to find variations in the results.

Conclusion

Engineering students wanted to connect emotionally with the outside world and socialise themselves with existing friends. So, this prompted students to use social networking sites especially, for entertainment purpose as it is provided for free of charge. Social networking sites make it easier for students joining groups and make friends online with others who share his/her particular interests. Students were found to express their emotions, or thoughts through posting information about their interests. Students used social networking sites as an interactive platform for academic communication such as sharing study materials, video, ideas regarding projects, assignments, content creation, seminars, and academic discussions based on educational interest which helped them in the improvement of their academic performance. To prevent distractions caused by mobile phones, college management should implement policies related to jamming that restrict students from using cell phones and accessing internet during instructional time and provide access to social networking sites to the students when in the library.

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