

Factor Analysis Approach in Understanding Student's Attitude towards Social Media Usage in Agricultural Higher Education

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The social media concept has received much consideration from higher education since a period of ten years in India. The study was conducted for analysing the usage and effects of social media on agricultural students. The primary data was collected through questionnaire. Simple random sampling was employed, a sample of 126 students in which 100 PGDMA students from ICAR-NAARM and 26 B.Sc. Agricultural students from ANGRAU. The responses were analysed by using factor analysis and the most influenced responses were social media is a part of their everyday activity (0.88), their communication skills were improved because of social media (0.83), They felt that they were part of the social media community (0.87) and they derived satisfaction through networking and communication (0.84). These were the most affected statements from PGDMA students and B.Sc. Agricultural students. Conclusively, social media has enriched the acquaintance of individuals and build cognizance amongst students in all the aspects.

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1. INTRODUCTION

Social media platforms are very common in modern education system everywhere, especially in Indian universities. The popularity and commercial significance of social media has improved over last decades, assisting many of users to share instant data, statistics and media products. The way of people communicates and relate both online and offline has changed because of the development of social media. Millions of people are normally used the Social media on everyday basis of life, young peer group of people using social media across the world for diverse reasons. Students are a large element the various young customers of social media. With social media, students have changed the manner they use the net as for retrieving statistics to developing and sharing statistics with their peers over the net [1]. Social linkages are examined to find out the trends, get competitive material, pay attention, and take part in conversations with users and interested parties [2].

In the year 2020, Facebook was the most important social network with 2.7 billion people out of 3.96 billion using social media globally. Followed by YouTube and WhatsApp, by 2 billion

users, subsequently Messenger, WeChat and Instagram, were with more than 1 billion users.

In the daily lives of students, the usage of innovative technologies (exclusively social media) is progressively more popular around the world. According to a Statistic Brain report (2014, social network statistics), it is worth noting that the social media utilization rate between the ages of 18-29 has reached 90 per cent, indicates the key indicators correlated to the use of this platform from the beginning of middle age.

1.1 Social Media in National Agricultural Research and Education System (Nares)

The Social media is widely used in all the three domains of NARES- i.e., teaching, research and extension. This infers that SM use can be promoted widely among NARES for accelerating professional outputs. The most popular used SM tools in terms of time spent were WhatsApp, Google, You Tube, Facebook and Wikis in that order and so these tools to be considered in future SM initiatives. SM is used more for personal use than professional use. A strategy can be focused by the NARES to bring SM in some phases of the work to be compulsory with

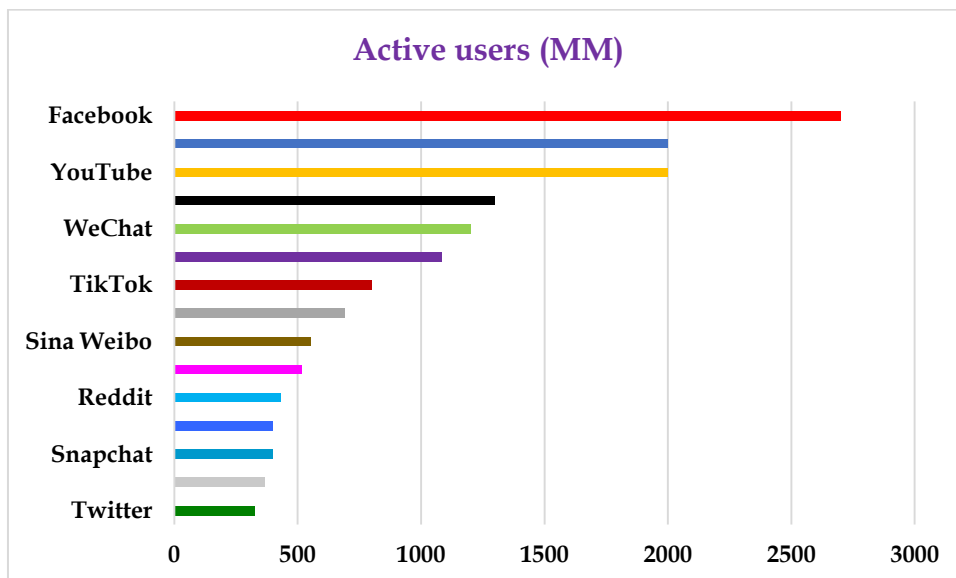


Fig. 1. Most popular social media by number of active users
 Source: (Statista), (FB IR Q1 2020)

a regulated policy. Harnessing the potentials of SM in professional work can be thought by organizations in terms of improving efficiency in communication, updating information and knowledge in specialized areas. There is a need to develop specific guidelines and policy to promote better use for professional activities. Varying pattern in use of Information and Communication Tools to access SM were-laptops and smart phones by students and extension personnel, desktops were used mostly by researchers and all tools by teaching fraternity. Social media is steadily used in higher education [3] and in the educational context it has much potential [4]. Some studies have revealed the social media usage in higher education has improved learning, increased contribution and engagement, enhanced content dissemination and better-quality pedagogy and information sharing. Bradley [5] find out a prominent position in recognizing higher education and stimulating the tremendous potential that web technologies have brought to improving student appointments, college experiences, and pedagogical trainings, and has fostered inventions & changes to stay up-to-date with the reformed education system. Aijan & Hartshorne, [6] Chen & Bryer, [7] & Roblyer et al. [8] specified several factors and explored in the context of higher education, the use of faculty and students' participation in social media and its usage in tutelage. Gupta and Bashir, [9] findings revealed that by the expert's opinion 42 statements were used to analyse the social networking usage of students on a Likert scale (5-points). Factor analysis was employed to reduce variables to a smaller number of more identifiable groups of variables. In factor analysis, five factor structure explained 53.20 per cent of the variance. Gerlich *et.al.* [10] revealed that social media was adopted by students in very great amount. The SMA Scale indicated high reliability and factor analysis is useful approach in the field of influential trust about social media, in new applications there is a conceivable enthusiasm to adopt social media. The agricultural professionals had positive attitude on social media. Moreover, it is apparent that social media have the capability to be the preferable tool for agricultural professionals' communication and interaction [11]. The widely held research up to now concerning to social media usage inside education has remained dedicated on commitment or social incidence.

In higher education, the social networking usage can be differing from information media,

feedback, marketing media, complain, examination and communication media. The magnitude of SN media usage depends of some factor such as: The circumstantial and user behaviour, access to internet by policy of University, the university communication behaviour, in daily communication, the role and rule of social networking and the user attitude. Therefore, the study was conducted to understand the attitude of students towards social media in Agricultural Higher Education.

1.2 Statement of the Problem

Social Media became greatly incorporated in the manner student react, think and communicate with others. Media improves the field of education and impact learners, instructors, administrators and parent greatly.

1.3 Hypothesis

Thus, we hypothesize that between the students towards social media usage there is no relationship. Attitude towards the social media will be correlated with enhancing knowledge towards their goals/aims in achieving the jobs and make them become an entrepreneur.

1.4 Research Objective

Thus, the present investigation focusses on the major objective is to ascertain the attitude of students towards the social media usage.

2. METHODOLOGY

2.1 Study Area

Telangana state and Andhra Pradesh state were purposively selected for the present study. Telangana State is located on the Deccan Plateau, in the central stretch of the eastern coastline of the Indian Headland. Telangana state is a semi-arid area and has a for the most part hot and dry climate. The Telangana State, India is situated at India country in the States place category with the Global Positioning System coordinates of 17° 7' 23.4624" N and 79° 12' 31.7664" E.

Andhra Pradesh state, located in south-eastern part of the subcontinent. The climate is mostly hot and humid in the lowland coastal provinces, while it is mostly semi-arid in parts of Rayalaseema districts. These parts fall under the

Table 1. Interpretation

Factors	Interpretation
X1	Social media broadened my personal communication and interactions
X2	Social improved openness and transparency in the organization
X3	I derived satisfaction through networking and communication
X4	My communication skills improved because of Social media
X5	My networking skills enhanced with Social Media
X6	Social Media improved offline relations
X7	Personal details are at risk in social media
X8	Fabricated profile on social media creates problems
X9	Social Media is a part of my everyday activity
X10	I am proud to tell people that I'm on Social Media
X11	Social media has become part of my daily routine
X12	I feel out of touch when I haven't logged onto Social media for a while
X13	I feel I am part of the Social media community
X14	I would be sorry if social media shut down

rain shadow province of the Western Ghats. The State of Andhra Pradesh lies between 12°41' and 19.07°N latitude and 77° and 84°40'E longitude.

The purposive sampling method was used to clinch righteous depiction of the selected group i.e., students of higher education as users of the social networking sites. To determine the questionnaire validity, content validity method was used. In order to measure the item consistency, 126 feedback forms were collected and overall Cronbach's alpha coefficient was calculated to 0.72, suggested that the analytical tool is acceptable to use in data collection. This research article is focused on to intricate on how much impact on students for engaging in activities related to their studies by the usage of social media. In precise, the main questions for this study were (Table 1):

2.2 Statistical Analysis

To evaluate suitability of factor analysis, adequacy of sampling test i.e., Kaiser-Meyer-Olkin (KMO) was used. Values ranges from 0.5 to 1.0 specifies factor analysis was suitable in given case. To study the hypothesis, Bartlett's test of Sphericity was used, within the population the variables are not correlated. In other ways, there has no correlation with other variable but each variable correlates with itself. The significance value for the Bartlett's test is 0.00, suggesting the hypothesis rejection. This indicates that the variables are correlated, hence factor analysis is an appropriate test in this situation. Each variable sampling adequacy was

measure in the model and by using Kaiser-Meyer-Olkin and Bartlett's test of Sphericity tests, the strength of relationship among variables was quantified.

Factor analysis is used to reduce the variables to a smaller, more manageable number of more identifiable groups of variables and to discovers the number of factors of usage of social media which are affecting student's attitude towards social media. Kaiser-Mayer-Olkin (KMO) test was also used to examine the data suitability. The amount of variance of a variable, share with all the other variables being considered was explained by communality.

3. RESULTS AND DISCUSSION

One hundred and twenty-six questionnaires were distributed and collected, with a response rate of 100%.

3.1 The Participants

To complete the procedure, the 105 (n= 105) answered to the precise questions in the questionnaire. The gender demographics presented the following results: male (57%) and female (43%). The analysis clearly reveals that, the students in the young age group of 20-22 years were in majority with 59 per cent, 22-24 years (33%) and 11 years-more (8%). In terms of PGDMA (2019-21), graduate had the highest representation (at 45 %), followed by PGDMA (2020-22) (30 %) and state university (ANGRAU) declared (25 %) (Table 2).

Table 2. The participant’s general information involved in this study (who answered the questions)

	Gender	n	%	Total % of M & F
PGDMA [#] 2019-21	F**	16	15.24	57 % of Male & 43 % of Female
	M*	31	29.52	
PGDMA 2020-22	M	18	17.14	
	F	14	13.33	
ANGRAU ^{##}	M	11	10.48	
	F	15	14.29	
Total	M + F	105	100.00	
	Age	n	%	Total % of age
PGDMA 2019-21	20-22	27	20.45	59 % of 20-22 Years, 33 % of 22-24 Years & 8 % of 24-26 Years old
	22-24	20	15.15	
	24-26	2	1.52	
PGDMA 2020-22	20-22	24	18.18	
	22-24	23	17.42	
	24-26	9	6.82	
ANGRAU	20-22	27	20.45	
	22-24	0	0	
	24-26	0	0	
Total		132	100	

Source: Author’s own work

* M--- Male **F--- Female

PGDMA-Post Graduate Diploma in Management

ANGRAU-Acharya N.G. Ranga Agricultural University

Table 3. KMO and Bartlett's test

KMO and Bartlett's Test	PG Diploma students
KMO Measure of Sampling Adequacy.	0.708
Bartlett's Test of Sphericity	Approx. χ^2 - test
	df
	Sig.
	232.031
	36
	0

Source: Author’s own work

Table 3 indicates that KMO measure is 0.708 which is greater than 0.60 and it showed that statistically significant of Bartlett’s test of sphericity. It was projected that factorability is suitable because of Bartlett’s test of sphericity is statistically significant and more than 0.60 of Kaiser-Mayer-Olkin (KMO) value [12]. So, analysis revealed that to observe factors utilization of social media affecting students is suitable to ensue with factor analysis.

The correlation between each factors is known as factor loading and its ranges from -1 and +1. The calculated variance by individual factor equivalent the square of its factor loadings. This variance is called Eigen value. The first Eigen value is always higher than 1. The Eigen value for subsequent factors is lower. Higher factor loading of the factors and their formal validity is desirable appear to quantify the obscured characteristic.

The Table 4 exhibit that extracted factors in consort with their Eigen values and for factors at 6 stages the total variation was explained. From 9 variables, three factors were taken out because their Eigen values were greater than one. In original 9 variables, 65.6 per cent of the variability described by the extracted factors, by using these factors, data complexity can be reduced. In the given Table the first factor lied in the attitudinizes “they were proud to tell people that they were on Social Media, “They sense out of touch when they haven’t logged onto Social media for a while”, “they sense that they were a part of the Social media network” and “they would be sorry if social media shut down” this factor is most important factor forming stance towards social media. This factor accounts per se for 34.7 per cent of the disposition towards social media of students in this province.

In second factor lie the attitudes “I derived satisfaction through networking and communication”, “My communication skills improved because of Social media” and My networking skills enhanced with Social Media”, accounting for 18.5 per cent of the changes in frame of mind towards social media.

The third factor lie the attitude “Social Media is a part of their regular activity” and “Social media has emerged as a part of their everyday recurring” These demeanours ultimately account for 12.3 per cent of the changes in approach of students towards social media.

Table 4. Rotated factor matrix & total explained variance of PG Diploma students

Rotated Component Matrix	Component 1	Component 2	Component 3
X14) I would be sorry if social media shut down	0.81		
X13) I feel I am part of the Social media community	0.80		
X12) I feel out of touch when I haven't logged onto Social media for a while	0.65		
X10) I am proud to tell people that I'm on Social Media	0.47		
X4) My communication skills improved because of Social media		0.83	
X5) My networking skills enhanced with Social Media		0.79	
X3) I derived satisfaction through networking and communication		0.65	
X9) Social Media is a part of my everyday activity			0.88
X11) Social media has become part of my daily routine			0.80
Eigen values	3.12	1.67	1.10
% of Variance	34.7	18.5	12.3
Extraction Sums of Squared Loadings	3.1	1.6	1.1
Cumulative %	34.70	53.32	65.60
RSSL	2.1	1.8	1.8

Source: Author's own work

Table 5. Rotated factor matrix & Total Explained Variance of B.Sc. Agricultural students

Rotated Component Matrix	Component 1	Component 2	Component 3
X3) I derived satisfaction through networking and communication	0.84		
X10) I am proud to tell people that I'm on Social Media	0.78		
X2) Social improved openness and transparency in the organization	0.67		
X14) I would be sorry if social media shut down	0.59		
X1) Social media broadened my personal communication and interactions	0.40		
X4) My communication skills improved because of Social media	0.50		
X13) I feel I am part of the Social media community		0.87	
X12) I feel out of touch when I haven't logged onto Social media for a while		0.73	
X6) Social Media improved offline relations also		0.44	
X7) Personal details are at risk in social media			0.79
X8) Fabricated profile on social media creates problems			0.67
Eigen values	4.46	1.76	1.19
% of Variance	40.62	16.07	10.81
Extraction Sums of Squared Loadings	4.46	1.76	1.19
Cumulative %	40.62	56.70	67.52
RSSL	2.74	2.71	1.97

Source: Author's own work

In Table 5 the first factor lied the attitudes “Social improved openness and transparency in the organization”, “I derived satisfaction through networking and communication”, “they were proud to tell people that they were on Social Media” and “they would be sorry if social media shut down, “Social media broadened my personal communication and interactions” and My communication skills improved because of Social media, accounting for 40.62 per cent.

The factor pays more to the variable when absolute value of loading is larger. In second factor “They sense out of touch when they haven’t logged onto Social media for a while”, “they feel that they were part of the Social media community” and “Social Media improved offline relations also” accounts for 16.07 per cent and in third factor “Personal details are at risk in social media” and “Fabricated profile on social media creates problems” accounted for 10.81 per cent. The changeability in original 11 variables was explained 67 per cent by means of extracted factors.

In Table 5 shows loading of Nine variables on three extracted factors. In Factor 1 there were 4 variables and their factor loadings ranging from 0.47 to 0.81 which was found by performing Varimax rotation method with Kaiser Normalization. The factor 1 variables were X10, X12, X13 and X14. Three items were included in Factor 2 with factor loadings 0.65 to 0.83. The factor 2 items were X3, X4 and X5. Factor 3 comprises of X9 and X11 with 0.80 to 0.88 factor loading. These results are in conformity with Iqbal et al. [13] who concluded that Learning through communication and skills had 11.92 per cent of variation in usage of social media.

4. CONCLUSIONS

This paper aimed to describe students perceiveness about social media use in the context of higher education, how their engagement can be described in terms of taking on roles, and what implications different approaches have for implementing social media use in teaching. By and large, the students’ perception, use, and attitudes have been the focus, but, as a complement, teachers’ incentives for including and integrating social media have been taken into account, and in some studies their communication, attitudes, and activity were also analysed. It is concluded that social media have some positive and some negative impacts on students. Job opportunities, learning and

entertainment is provided by social media. It has enriched the acquaintance of individuals and build cognizance amongst students in all aspects. In this study the most influenced responses by the students were Social Media is a part of everyday activity, communication skills improved because of social media, they were part of the social media community & they derived satisfaction through networking and communication.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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