



Constraint Analysis of Effective Social media Utilization Behaviour among Extension Agents in Andhra Pradesh

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ABSTRACT

Social media and communication networks are escalating all over the world at a high rate. It is a highly appropriate and valuable tool for extension agents to communicate with farmers and colleagues because of its potentials. Having said that their utilization on personal and professional grounds differ, the present study was undertaken to identify the constraints as perceived by extension agents in the access and utilization of social media in extension services. The study was conducted in three districts of Andhra Pradesh with a sample of 160 extension agents through a proportionate random sampling method. Significant differences of different dimensions of constraints were compared using Kruskal-Wallis one-way ANOVA (K observed = 9.32, df = 3, $p < 0.05$). Each set of constraints contains sub-categories and they were tested by using Friedman's two-way ANOVA. The results revealed that communication constraints were most severe (mean value= 16.25) followed by technical and physical constraints as perceived by extension agents. Among the communication constraints, lack of clarity regarding the exact benefits of social media (mean value=6.11) is the major constraint followed by inappropriate and incomprehensible information (mean value=5.72). Social constraints (mean value=2.33) are the least constraints among the given constraints. The research findings will help to formulate appropriate strategies that will lead to increased utilization of social media among extension agents.

Keywords: Social media, Constraints, Social, Physical, Technical, Communication constraints

INTRODUCTION

India and other developing nations are exploring the potential of digitalization and digital technologies in all spheres of development along with agriculture and allied sectors. In the agriculture development of the country, along with research and education, digitalization is playing a key role in extension services also. Extension and advisory services and emerging in reaching farmers through many innovative ways, where traditional technology transfer was replaced with ICT enabled communication. Now ICT-based communications also have revolutionized from one-way communication to two-way communication which is interactive and user-generated content-oriented, social media-based communication networks. Social media provides a huge

platform for extension agents to connect to farmers, their peers, and different research organizations to maintain networks. Social media had revolutionized communication and interaction patterns. Different social media platforms such as YouTube (Pusa Samachar), Facebook, what's app groups, many other platforms are improving the networks and two-way, real-time communication. Understanding the potential of social media many studies were conducted on how social media can be used successfully by both extension organizations and farmers. Many studies have proved the potential social media offers. Studies have found out that certain constraints prevent the effective social media utilization in extension and advisory services, constraints can be of both sides including the farmer and the extension agents. When the constraints faced

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by organizations and extension agents are considered few studies revealed that, personal (absence of interest in social media, negative attitude, or organizational constraints), infrastructure (nonexistence of internet connections for target clients or extension agents), and policy (organizational rules that confine the use of social media for official reasons) inadequacies obstruct the social media usage. With problems including restricted access to ICTs and internet facilities in rural regions, their compatibility for mainly educated and online clients, certain farmers' and extension experts' lack of awareness and willingness to use social media, and infringement of individual privacy, piracy of resources, and irrelevant information are also preventing the social media utilization. (Raj and Bhattacharjee, 2017). Since extension agents are on the front lines of the dissemination of information, there is a need to conduct empirical research in constraints faced by extension agents on the grassroots level when utilization of social media and dissemination of the messages is considered. Findings may help to assist and educate the extension system when they are making strategies regarding increasing the outreach to farmers through social media-like platforms.

MATERIALS AND METHODS

To analyze the constraints which are faced by extension agents in the utilization of social media an ex-post-facto study was taken up in the IT revolutionized state of southern India which is Andhra Pradesh. The study was conducted in three randomly selected districts of Andhra Pradesh which are Chittoor, Guntur, and Srikakulam. A sample total of 160 extension agents were selected from these three districts through a proportionate random sampling method with 60 from Guntur, 60 from Chittoor, and 40 from Srikakulam. Different categories of constraints were collected through literature review, expert opinion, and extension agents' perception. Data was collected using a structured questionnaire. Constraints faced by extension agents were classified into four major groups which are social, technical, physical, communication constraints.

Kruskal-Wallis one-way analysis of variance: It is used for comparing more than two independent samples. It is a non-parametric method for testing whether samples are derived from the same

distribution. When the Kruskal-Wallis test leads to significant results, then at least one of the samples is different from the other samples. If the analysis is found significant, then, the means can be compared to find the most important constraint among the different dimensions of constraints. The test statistic (for a large sample) is,

$$K = \frac{12}{N(N+1)} \sum_{i=1}^g n_i \left(\frac{\sum_{j=1}^{n_i} r_{ij}}{n_i} - \frac{N+1}{2} \right)^2$$

which follows a χ^2 distribution with $(g-1)$ degrees of freedom, where 'g' is the number of groups 'n_i' is the number of observations in the ith group, 'r_{ij}' is the rank (among all observations) of jth observation from group 'i' and 'N' is the total number of observations across all groups.

Friedman's test for related samples: It is a non-parametric test used for comparing more than two samples that are related. When Friedman's test leads to significant results, then at least one of the samples is different from the other samples. If the Friedman test is significant then the means of all the constraints in a subcategory can be compared to find out the most important constraint in that subcategory. The test statistic is given by

$$Q = \frac{SS_k}{SS_e} - \chi^2_{(k-1)}$$

where 'k' is the number of related groups,

$$SS_k = n \sum_{j=1}^k \left(\frac{\sum_{i=1}^n r_{ij}}{n} - \frac{\sum_{i=1}^n \sum_{j=1}^k r_{ij}}{nk} \right)^2 \text{ and, } SS_e = \frac{1}{n(k-1)} \sum_{i=1}^n \sum_{j=1}^k \left(r_{ij} - \frac{\sum_{i=1}^n \sum_{j=1}^k r_{ij}}{nk} \right)^2$$

and, 'r_{ij}' represents the rank of 'jth' observation from group 'i'.

RESULTS AND DISCUSSION

A constraint prevents or limits an individual or a group to utilize any resources or information or restrains them from unrevealing the intended effect of the information. Constraints can be of any type like personal or external in a social system. The use of social media for advisory services poses several new challenges at the institutional, infrastructural, personal, and security levels, Barau and Afrad (2017). In this

study, the limiting factors perceived by the extension agents in achieving efficient social media utilization behaviour were classified into four groups namely, social, technological, physical, and communication that limits the effective usage and delivery of information.

Table 1: Severity comparison of different components of social constraints among extension agents (Friedman’s test)

Statements	Mean Rank	Rank
Personal perception and attitude	2.36	I
Difficult to learn and maintain digital literacy	2.00	II
Inclination towards traditional dissemination methods	1.64	III
Friedman Test Statistic		
N	160	
Chi-Square	40.612	
Degrees of freedom	2	
Level of significance	<0.001	

Social constraints were operationalized as those which limit the effective social media utilization behaviour by extension agents from the sociological perspective (Table 1). Three different constraints on social dimension were enlisted and responses based on severity were collected. Friedman’s test was used to compare the constraints. As the p-value is less than 0.001 it is very clear from the table that social constraints are statistically significantly different from each other. Social constraints were having a significant effect on the effective social media utilization behaviour of extension agents. Among the constraints, based on the mean of ranks value, personal perception and attitude (Mean value=2.36) is the major constraint followed by, difficulty in learning and maintaining digital literacy with a mean rank of 2.00. Inclination towards traditional dissemination methods was the least constraint with a mean score of 1.64 as it is well known that transfer of technology methods has changed considerably.

Technological constraints were operationalized as those which limit the use of social media platforms due to their technological complexity and requirement for information and skill (Table 2). Six different constraints were enlisted and responses based on severity were collected and analyzed using Friedman’s

Table 2: Severity comparison of different components of technological constraints among extension agents (Friedman’s test)

Statements	Mean Rank	Rank
Lack of time for social media and content development	4.75	I
Lack of proper internet connection in rural areas	4.19	II
Lack of training and technical expertise in developing user-generated content	3.84	III
The multiplicity of sources and information -overloaded	3.12	IV
Lack of credible and worth information	2.82	V
Lack of digital knowledge and skill	2.28	VI
Friedman Test Statistic		
N	160	
Chi-Square	194.400	
Degrees of freedom	5	
Level of significance	<0.001	

test. As the p-value is less than 0.001 it indicates that technological constraints are statistically significantly different from each other. Technological constraints have a significant effect on the effective social media utilization behaviour of extension agents. Among the constraints, based on the mean of ranks value, lack of time for social media and content development was considered the major constraint with a mean value of 4.75. Lack of proper internet connection in rural areas is the second most important constraint with a mean rank value of 4.19. Among the technical constraints faced by extension agents, lack of digital knowledge and skill is found to be the least constraint with a mean value of 2.28 as most of the extension agents were having technical and digital literacy. The study aligned with the findings of Suchiradipta and Saravanan (2016). found that the most severe constraints in the utilization of social media by extension agents were poor connectivity in rural areas, (69.9%), faulty internet connection (35.20%), unproductive use of time (33.90%).

Physical constraints were considered as the infrastructure-related constraints which prevent the extension agents from achieving effectiveness in social media utilization (Table 3). Six different constraints were enlisted and analyzed using the Friedman test to

Table 3: Severity comparison of different components of physical constraints among extension agents (Friedman’s test)

Statements	Mean Rank	Rank
Lack of privacy in social media	4.58	I
Farmers use basic mobile phones	3.97	II
High data costs	3.88	III
High cost of equipment (Mobiles, tablets, laptops)	3.06	IV
Inadequate service	3.02	V
Lack of proper tools	2.49	VI
Friedman Test Statistic		
N		160
Chi-Square		135.543
Degrees of freedom		5
Level of significance		<0.001

compare the constraints. As the p-value is less than 0.001, physical constraints are statistically significantly different from each other. Among the physical constraints, lack of privacy in social media with a mean score of 4.58 was ranked first among all the constraints followed by farmers’ use of basic mobile phones being the second major constraint and high data costs being the third important constraint with a mean value of 3.88. Among all the physical constraints lack of proper tools was the least constraint with a mean score of 2.49 ranked VI as the number of mobile connections in India in January 2021 was equivalent to 79.0% of the total population (Statistica, 2021) which indicates that lack of tools was no more a major constraint in present-day situations. The study agreed with the findings of Suchiradipta and Saravanan (2016). found that the most severe physical constraints in the utilization of social media by extension agents were (52.00%) high data costs. The finding is also supported by Newbury *et al.* (2014) which includes concerns around control, privacy, and time investment in social media.

Communication constraints can be operationalized as the constraints that are caused due to communication gaps and improper treatment of the message (Table 4). Eight different constraints were enlisted and responses based on severity were analyzed using the Friedman test to compare the constraints. As the p-value is less than 0.001 it is very clear from the table that communication constraints are statistically

Table 4: Severity comparison of different components of communication constraints among extension agents (Friedman’s test)

Statements	Mean Rank	Rank
Lack of clarity regarding exact benefits of social media	6.11	I
Inappropriate and incomprehensible information	5.72	II
Illiteracy of clients	5.49	III
Difficulty to find appropriate information	4.89	IV
Lack of feedback	4.26	V
Lack of interest	3.45	VI
Weak research extension linkage	3.07	VII
Lack of active participation	3.00	VIII
Friedman Test Statistic		
N		160
Chi-Square		284.946
Degrees of freedom		7
Level of significance		<0.001

significantly different from each other. Communication constraints were having a significant effect on the effective social media utilization behaviour of extension agents. Among the constraints, based on the mean of ranks value, lack of clarity regarding exact benefits of social media with a mean score of 6.11 was found to be the major constraint which states that it is important to increase the awareness of the benefits of social media. The second major constraint was inappropriate and incomprehensible information with a mean rank of 5.72 and illiteracy of clients being the third major constraint with a mean value of 5.49. The data obtained is broadly consistent with the study of Thakur and Chander (2018) which stated that social media has some disadvantages, such as high frequency of irrelevant messages, high usage of data, and weak connectivity to the Internet. Among all the communication constraints lack of active participation was considered as the least constraint as the majority of the extension agents are part of social media groups and communities.

It can be seen from Table 5 as the p-value is equal to 0.05 and the k observed is greater than the k critical value which rejects the null hypothesis stating that the constraints are statistically significantly different from

Table 5: Major dimension of different constraints among extension agents (Kruskal-Wallis test)

Constraints	Freq- uency	Average mean score	Average mean Rank	Rank
Communication Constraints	160	115.51	16.25	I
Physical constraints	160	70.52	11.66	II
Technical constraints	160	70.51	11.5	III
Social constraints	160	19.51	2.33	IV

Kruskal-Wallis Test Statistics

N	160
K observed value	9.32
K critical value	7.81
df	3
Level of significance	0.05

each other. The mean rank corresponding to communication constraints is highest and therefore it was the major constraint to the use of social media and was not on par with any other constraints. Hence it can be concluded that communication constraint was perceived to be most severe and significant by the extension agents. Physical constraints and technical constraints were moderately severe and social constraints had less significance as constraints for extension agents' effective social media utilization behaviour.

CONCLUSION

The present study highlighted the importance of social media accessibility, digital literacy, time management, and information management to develop effectiveness in social media utilization among extension agents. Since appropriate information and internet connectivity were identified as two important components in promoting social media utilization, it needs to be taken care of, for making extension agents inclined towards their content creation and information management in effective utilization of social media. The success of social media as a communication platform depends on the capacity of the extension agents to organize

and implement the practice altogether. Collective utilization and motivating farmers are the other two areas to overcome the constraints. Some of the recommendations are, to strengthen the capacities through training on content development, development of technical team for quality control, message accuracy, and suitability, gender sensitized information, infrastructure, and access to internet facilities, and further research on social media impacts and advancements would help in increasing the effective social media utilization in agricultural advisory services.

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