

## Original Research Article

# A Scale to Measure Attitude of Agricultural Professionals towards Social Media in Tamil Nadu, India

P. Sivaraj<sup>1\*</sup>, H. Philip<sup>2</sup> and R. Thulasiram<sup>3</sup>

<sup>1</sup>Department of Agricultural Extension and Rural Sociology, Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu (641 003), India

<sup>2</sup>Directorate of Extension Education (DoEE), Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu (641 003), India

<sup>3</sup>Imayam Institutes of Agricultural Technology, Thuraiyur, Tamil Nadu (621 206), India

\*Corresponding author

## ABSTRACT

### Keywords

Agricultural Professionals, attitude scale, individual, social media, statements.

This study aims to investigate agricultural professional's attitudes towards use of social media, in the perspective of agriculture information sharing. Social media has a great effect on people's lives and millions of students are spending many hours for social networking sites like facebook, twitter, youtube, whatsapp, blog and LinkedIn etc. Attitude refers a tendency revealed through varying degrees of favourable or unfavourable judgments. Attitudes are expressed in three categories – cognitive, affective, and behavioural. The cognitive category includes all ideas that individuals hold about attitude objects. The behavioural category involves individuals' actions regarding attitude objects. Researchers could expect that individuals' attitudes positively related to their apparent behaviour. This study was designed to develop a scale to measure the attitude towards social media. Thurstone and Chave (1929) equally appearing intervals scale was adopted to develop the scale. The final scale comprised of six statements.

## Introduction

Social media refers to the means of communication among people in which they create, share, consume and exchange information and ideas in virtual communities and networks. Extension mechanisms will have to be drive the farmers' needs, be a location specific information and to address diversification of demands in agriculture. The focus is on availability and accessibility of knowledge-based technologies to upgrade and improve the skills of not only agricultural professionals but also for the farmers. Extension services must maintain close and

effective relationships with sources of appropriate information, expertise, practical, specific problems from the farmers.

Nowadays, online social networks (e.g., facebook, linkedIn, twitter) receive a lot of attention because they have quickly gained popularity the world (Silius *et al.*, 2010). In fact, in recent years, these social networks have been able to make a revolution in the fields of communication (Espuny *et al.*, 2011) and information and knowledge sharing (Grosseck, 2009). In particular, they have attracted the attention of the young

generation (Hamid *et al.*, 2009) as well as university students (Brady *et al.*, 2010) because of their interactive and multidimensional characteristic; these networks allow their enthusiastic users, all familiar with the fast growing world of technology and internet, to freely and quickly share, with their family members, friends and colleagues, the most significant moments of their lives, in addition to their ideas, opinions and beliefs.

Educators and institutional administrators are increasingly promoting and trying out social media tools in attempts to open up communication channels, to tie students closer to their institution and to engage students more in their classes (Junco *et al.*, 2010; Junco, 2012a). Such tools include, for instance, the popular among students 'Facebook' application and the micro blogging tool 'Twitter.' Reasons often given for using such tools in an educational setting include the need to meet students where they already are (Bodde, 2011), especially in the online spaces they inhabit. Research-based evidence from the usefulness of social media implementations for learning purposes, however, remains limited (Hew, 2011; Junco, *et al.*, 2010).

Hence, the majority of research conducted so far relating to use of social media within education has been focused on engagement or social presence. Examples include Walter and Barazova's (2008) study on how social media allows for propinquity within groups and addresses the perceived impact on social presence. Researchers have also looked at number of tweets and their communicative purposes (Boyd *et al.*, 2010; Honeycutt and Herring, 2009) and instances of job postings over LinkedIn, a social network for professionals analyzing qualifications needed as specified by employers (Wakefield *et al.*, 2012).

A total of 30 statements resulted after deletion of 52 statements as per the criteria suggested by Edwards (1969), and were sent to 50 agricultural personalities working in Tamil Nadu Agricultural University for the critical evaluation of statements on a 5 point continuum. Tamil Nadu Agricultural University is one of the pioneering institutes in India making development in agricultural Research, Education and Extension in Tamil Nadu. It is inventing more number of scientific technologies in the field of agriculture through the support of innovative scientists. An attitude scale was developed by using equal appearing interval method.

## **Materials and Methods**

### **Computation of attitude scale**

The scale was constructed by following 'Equal Appearing Interval' scaling technique developed by Thurstone and Chave (1929). For the purpose, attitude was operationalised as the mental disposition of the students about social media in varying degrees of favourableness or unfavourableness. Possible statements concerning the psychological object 'Social media' with respect to the psychological and economical domains were collected based on the review of literature and discussion with scientists. In total, 52 statements were collected which were organized and structured in the form of attitude items.

The items were screened by following the informal criteria suggested by Edward's (1969) for editing the statements to be used in the construction of the attitude scale. Based on the screening 30 items were selected which formed the universe of the content. The 30 statements were then subjected to judges' opinion on a five-point continuum ranging from most unfavourable to most favourable. The items were screened

by following the informal criteria suggested by Edwards (1969) for editing the statements to be used in the construction of the attitude scale. The list of statements was sent to 50 judges who comprised of 50 scientists of Tamil Nadu Agricultural University. Among the 50 judges 30 judges responded by sending their judgments. Based on the judgments the 'S' and 'Q' values for each statement were calculated by applying the equal appearing scale Interval formula as suggested by Thurstone and Chave (1929). Individual statements obtained scale and 'Q' value (Table 1).

$$S = l + \left[ \frac{0.5 - \sum pb}{pw} \right] i$$

Where,

S – The median or scale value of the statement

l – The lower limit of the interval in which the median falls

$\sum pb$  – The sum of the proportions below the interval in which the median falls

Pw – The proportion within the interval in which the median falls

i – The width of the interval and is assumed to be equal to 1.0

$$Q = C_{75} - C_{25}$$

Where,

Q – Interquartile range

$$C_{75} \text{ – the 75}^{\text{th}} \text{ centile,} \\ C_{75} = l + \left[ 0.75 - \frac{\sum pb}{pw} \right] i$$

$$C_{25} \text{ – the 25}^{\text{th}}$$

$$\text{centile, } C_{25} = l + \left[ 0.25 - \frac{\sum pb}{pw} \right] i$$

The computed scale and Q values are tabulated in Table 2.

## Results and Discussion

### Selection of attitude items

The attitude items to be included in the final attitude scale were selected based on the distribution of scale values uniformly along the psychological continuum and high scale values and smaller 'Q' values. The scale values were arranged in descending order of magnitude and the difference between the successive scale values and the cumulative total of the computed differences were worked out. Since the selected scale values should have equal appearing interval and distributed uniformly along the psychological continuum it was necessary to form six compartments so as to select six statements with one statement from each of the compartment.

The basis for forming the compartments was that each compartment should be equally spaced in the continuum. For this purpose (Table 2) the difference between the highest scale value (4.11) and the lowest scale value (1.214) was worked out. The difference values obtained (0.482) was divided by six. This formed the width of the first class interval. The second interval was worked out by adding the value with the width of the first class interval. Subsequently all the six intervals were worked out. (Six Compartments: Compartment 1 = 0.482, Compartment 2 = 0.482 + 0.482 = 0.964, Compartment 3 = 0.482 + 0.482 + 0.482 = 1.446, Compartment 4 = 0.482 + 0.482 + 0.482 + 0.482 = 1.928, Compartment 5 = 0.482 + 0.482 + 0.482 + 0.482 + 0.482 = 2.41, Compartment 6 = 0.482 + 0.482 + 0.482 + 0.482 + 0.482 + 0.482 = 2.892). Each class

interval represented a compartment for the selection of the attitude items. So this formed the first compartment and similarly six compartments were worked out.

To select the attitude items from the six compartments the scale values and the corresponding ‘Q’ values were considered. Based on the criteria already mentioned items having high scale values and low ‘Q’ values were selected with one item from each compartment. Care was taken to ensure that the selected items represented the universe of content and covered the psychological and economical domains of social media. Thereby six items were

selected with equal appearing interval and with a uniform distribution along the psychological continuum. The attitude scale thus constructed is given in Table 3.

### **Reliability of the scale**

According to Singh (2008) stated that reliability of the scale was determined by split-half method. It may be prohibitively expensive or inconvenient to administer a test twice to estimate its reliability. Also, practice effects or other changes between Odd and Even might invalidate test-retest estimates of reliability.

**Table.1 Individual statements obtained scale and ‘Q’ value**

<b>Statement No.</b>	<b>Statements</b>	<b>Scale value</b>	<b>‘Q’ value</b>
1.	Exchange of information is more in social media	1.214	0.860
2.	Criminal activities increase due to social media	4.07	1.034
3.	Social media helps to access information easily	1.293	1.204
4.	Time spent on social media is merely waste	2.27	1.826
5.	Social media provides good entertainment platform	1.877	1.019
6.	Social media provide low cost information exchange	1.965	1.37
7.	Illiterate can understand information easily	2.169	2.43
8.	I become addicted to social media by often using	3.25	2.355
9.	Emergency communication possible through social media	4.11	2.875
10.	Social media will reduce book reading habit	1.69	1.30
11.	More job opportunities are available through social media	1.681	1.3
12.	Hand writing is spoiled while using only social media	3.20	2.391
13.	Social media helps to connect people anywhere at any time	1.246	0.453
14.	Marketing will be easy advertise through social media	1.50	0.125
15.	Awareness creation is more in social media	1.732	1.189
16.	I don't trust social media activities	1.50	1.425
17.	Lack of interpersonal relationship in social media	3.418	1.415
18.	One can help the farmers by information sharing	1.425	1.174
19.	Credibility of information less in social media	3.266	1.62
20.	Social media affect my personal life	2.436	2.125
21.	Social media provides more number of friends	1.89	1.72
22.	One can easily get depressed through social media	2.88	1.95
23.	I involved in extracurricular activities by using social media	2.33	1.35
24.	Social media restricts sharing of personal information	3.52	1.87
25.	Rationalization of information is difficult	3.52	0.63
26.	Technology transaction through social media is quickly	2.8	1.26
27.	Information obtained from social media is less reliable	3.06	1.65
28.	Social media affect health of individual	3.86	0.84
29.	Social media helps me to using ICT tools	2.1	0.58
30.	Social media is creating agitation among people	3.62	1.91

**Table.2** Computation of Equal Appearing Intervals

S. No.	Statement No.	Scale value	'Q' value	Difference between successive 'scale' value	Cumulative value	Interval	Compartments
1.	9	4.11	2.875	0.04	0.04		I
2.	<b>2</b>	<b>4.07</b>	<b>1.034</b>	0.21	0.25	0.482	
3.	28	3.86	0.84	0.24	0.49		II
4.	30	3.62	1.91	0.1	0.59		
5.	24	3.52	1.87	0	0.59		
6.	<b>25</b>	<b>3.52</b>	<b>0.63</b>	0.102	0.692		
7.	17	3.418	1.415	0.152	0.844		
8.	19	3.266	1.62	0.016	0.86		
9.	8	3.25	2.355	0.05	0.91	0.964	III
10.	12	3.2	2.391	0.14	1.05		
11.	<b>27</b>	<b>3.06</b>	<b>1.65</b>	0.18	1.23		
12.	22	2.88	1.95	0.08	1.31	1.446	IV
13.	<b>26</b>	<b>2.8</b>	<b>1.26</b>	0.364	1.674		
14.	20	2.436	2.125	0.106	1.78		
15.	23	2.33	1.35	0.06	1.84	1.928	V
16.	4	2.27	1.826	0.101	1.941		
17.	7	2.169	2.43	0.069	2.01		
18.	<b>29</b>	<b>2.1</b>	<b>0.58</b>	0.135	2.145		
19.	6	1.965	1.37	0.075	2.22		
20.	21	1.89	1.72	0.013	2.233		
21.	5	1.877	1.019	0.145	2.378	2.41	VI
22.	15	1.732	1.189	0.042	2.42		
23.	10	1.69	1.3	0.009	2.429		
24.	11	1.681	1.3	0.181	2.61		
25.	<b>14</b>	<b>1.5</b>	<b>0.125</b>	0	2.61		
26.	16	1.5	1.425	0.075	2.685		
27.	18	1.425	1.174	0.132	2.817		
28.	3	1.293	1.204	0.047	2.864		
29.	13	1.246	0.453	0.032	2.896	2.892	
30.	1	1.214	0.86	1.214	4.11		

**Table.3** Final set of attitude items selected with corresponding S and Q values

S. No.	Statement No.	Statements	'Scale' value	'Q' value	Nature of the Statements
1.	2	Criminal activities increased due to social media	4.07	1.034	Unfavourable
2.	25	Rationalization of information is difficult in social media	3.52	0.63	Unfavourable
3.	27	Information obtained from social media is less reliable	3.06	1.65	Unfavourable
4.	26	Technology transaction through social media is quickly	2.8	1.26	Favourable
5.	29	Social media helps me to using ICT tools	2.1	0.58	Favourable
6.	14	Marketing will be easy using through social media	1.5	0.125	Favourable

An alternative approach is to correlate scores on one random half of the items on the test with the scores on the other random half. That is, just divide the items up into two groups, compute each subject's score on the each half, and correlate the two sets of scores. This is like computing an alternate forms estimate of reliability after producing two alternate forms (split-halves) from a single test.

The six selected attitude items were divided into two equal halves by odd-even method.

$$r_{xy} = \frac{\sum (x - \bar{X})(y - \bar{Y})}{\sqrt{[\sum (x - \bar{X})^2][\sum (y - \bar{Y})^2]}}$$

Where,

X = one Pearson's score of the first half items (Odd)

$\bar{X}$  = Mean score value of first half items

Y = One Pearson's score of second half items (Even)

$\bar{Y}$  = Mean score value of second half items

The two halves were administered separately to 30 agricultural Professionals in a non-sample area. The scores were subjected to product moment correlation test in order to find out the reliability of the half-test. The half-test reliability coefficient 'r' was 0.55 which was significant at one per cent level of probability. Further the reliability coefficient of the whole test was computed using the Spearman-Brown Prophecy formula. The whole test reliability  $r_{tt}$  was 0.71. According to Singh (2008) when the purpose of the test is to compare the mean scores of two groups of narrow range a reliability coefficient of 0.50 or 0.60 would suffice. Hence the constructed scale is reliable as the  $r_{tt}$  was  $>0.60$ .

### **Content validity of the scale**

Content validation was carried out by subjecting the selected sex items to judges' opinion. The responses were obtained on a four-point continuum of most adequately covered, more adequately covered, less adequately covered and least adequately covered. Scores of 4, 3, 2 and 1 were given for the points on the continuum respectively. Totally 30 judges responded by sending their judgments. The mean score 2.5 was fixed as the basis for deciding the content validity of the scale. If the overall mean score of the attitude items as rated by the judges was above 2.5 the scale will be declared as valid and if not otherwise. In the present case the overall mean score was worked out as 3.39 and therefore the constructed attitude scale is said to be valid.

### **Administration of the scale**

The six attitude items selected were arranged randomly in order to avoid biased responses. The scale was administered on a five point continuum as strongly agree, agree, undecided, strongly disagree and disagree. The scores for favourable statements were given as strongly agree- 7, agree- 5, undecided- 4, disagree- 3 and strongly disagree- 1. For unfavourable statements the scoring procedure was reversed. The score obtained for each statement was summed up to arrive at the attitude score for the respondents. The score ranged from 42 (maximum) to 6 (minimum). The responses were grouped as less favourable, moderately favourable and highly favourable based on the cumulative frequency method.

The various methods available for constructing an attitude scale, Equal Appearing Interval method scaling

technique was used in this study to measure the attitude of agriculture Professionals towards social media. The reliability and content validity of the statements assessed. Reliability co-efficient should be between from 0.5 to 1 is considered as reliable. The result 0.71 this test is more reliable. Hence selected statement through equal appearing interval, the reliability test value shows the Scale “reliable” with Statement number 2, 25, 27, 26, 29 and 14.

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