

Development of a Standardized Scale about Knowledge, Attitude and Practice regarding Usage of Social Media

Arjun Bhowmik, Suwendu Ray and Dr. Deb Prasad Sikdar*
Department of Education, University of Kalyani, Pin - 741 235, West Bengal, India
Corresponding Author: Dr. Deb Prasad Sikdar
Professor, Department of Education
University of Kalyani, Dist. Nadia

Abstract:

Today social media plays a pivotal role in human life. It helps to gain knowledge and sharing of data. Now a days, students are habituated for using social media in everyday life for various purpose e.g. for teaching-learning process, for communication etc. The main objective of the study is to assess the quality of items for preparation of a standardized scale on knowledge, attitude and practice of higher secondary graded students regarding social media. To assess the knowledge, attitude and practice regarding social media, the investigator tried to prepare a self-made questionnaire. To achieve the pre-determined objectives of the study, the scale was administered on higher secondary graded students of Uttar-Dinajpur district. The scale consists of thirty (30) knowledge items, twenty-six (26) attitude items and eighteen (18) practice items regarding social media. The difficulty index and discrimination index of each item was determined and on the basis of this indices value, five (5) knowledge items, six (6) attitude items and two (2) practice items were rejected. Finally, twenty-five (25) knowledge items, twenty (20) attitude items and sixteen (16) practice items were selected in the final form of the scale. To determine the reliability of the test, a test was applied two times on the same group between fifteen (15) days gap through the use of test-retest method. Pearson's Product Moment Method was used to determine the correlation between two set of scores. The coefficient of correlation of the scale was found as 0.85, 0.82 and 0.87 respectively for knowledge, attitude and practice section/part of the scale, which is highly significant. It has been revealed that item analysis and test reliability play a crucial role in constructing a scale.

Keywords: Social media, knowledge, attitude and practice.

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I. Introduction

Social media is inseparably linked with modern life. Through social media, people can share their feelings, opinions, thoughts on various aspects. In this modern era people can communicate with the persons residing anywhere within a fraction of a second. Social media is an electronic medium through which a person can share his own opinions, thoughts, information, facts, content, etc. with another person. Merriam-Webster defines social media as "forms of electronic communication (such as websites for social networking and micro-blogging) through which users create online communities to share information, ideas, personal messages and other content e.g. videos" (Anonymous, 2022). Today, people can interact with each other through modern mediums or may say internet based tools of accessing social media such as Facebook, Twitter, Whatsapp, Instagram, Snap Chat, etc. So, the definition of 'social media' is broad and it refers to internet-based tools that allow individuals to communicate, to share evidence, thoughts, personal messages, pictures and other content and in some cases, to cooperate with each other users in genuine time (Abraham, 2020). Social media defined as web 2.0 internet based application and computer-mediated communications tools that enable users to consume and produce content varied modalities viz. text, image, and video (Rowan, *et. al.*, 2016).

Social media technologies have not only substantially changed the way organizations, communities and individuals communicate and socialize with each other, but they have also changed the way of people to learn, share information, exchange knowledge and create new ideas (Salih, *et. al.*, 2018). Social spending report showing that 77 percent of U.S Americans had a social media profile. Daily social media usage of global internet users amounted to 135 minutes per day, up from 126 daily minutes in the previous year as per social spending report 2018 (Abraham, 2020). Social media users have speedily adopted online social communication as an essential part of daily life, as evidenced by the increasing figure of daily users. In fact, Facebook alone reported an estimated 1 billion active users in 27 August 2015 (Hutchinson, 2015). It means one in seven people on earth using Facebook in a single day to stay connected with their friends and family (Bashir, *et. al.*, 2017).

Indians, on an average, spend about 2.36 hours on social media daily. In India, the numbers of social media users have been growing in 2022 at a steady rate of 467 million due to deep penetration of internet connectivity among people. The number of internet users in India has grown to a whopping 658 million, which is roughly 47% of the total population of India. Now, social media has become one of the most essential parts of daily internet usage in India (Anonymous, 2022).

There is a diversity of technologies used as effective tools to support student's educational learning and knowledge sharing. These tools are online collaborative tools that enable people to communicate, participate, collaborate and thus share information (Harinarayana and Raju, 2010; Kelly, *et. al.*, 2009; Kim and Abbas, 2010).

The majority of students often utilize this social media platform for communication purposes and rigorously engaged in it through devices like tablet, smart phone or computers. One study says, 93% of the teenagers' use of the internet, many of them allowing for it as a site for making social interaction (Sankar, *et. al.*, 2020). However, every day, students are spending countless hours immersed in social media (Chaudhary, *et. al.*, 2017). Social media have both positive and negative result among new generations. The major advantages of social media are easy sharing and receiving information with others. On contrary, disadvantages like frequent checking, instant updates unknowingly interrupt daily routines or daily scheduled works (Merlin, *et. al.*, 2020). As the numbers of social media users are increasing day by day, So, from the start students who will be our future generation need to be cautions about both the good and harmful aspects of social media and should try to develop their knowledge and attitude for proper using of social media. In order to avoid the harmful effects of social media students should refrain from bad practices or over accessing of social media. For these reasons, There is a requirement for developing proper knowledge, attitude and appropriate habit of practice among students. Higher secondary grade students of Uttar Dinajpur district regarding usage of social media hence subjected to the study.

As, there is no suitable scale for measurement of knowledge, attitude and practice regarding usage of social media by the higher secondary grade students, the study aimed to prepare a standardized scale regarding usage of social media.

II. Objective of the study

The main focus of the study is to assess the quality of each item of knowledge, attitude and practice regarding social media and to select the poor items so that they can be modified or rejected from the final test.

III. Research questions

The present study is based on some research questions. These are given below-

- I. What are the values of difficulty index and discrimination index of the items of knowledge, attitude and practice scale regarding social media?
- II. How many numbers of items are considered as effective items for the final scale after analyzing the items on the basis of item difficulty values and discrimination values?
- III. Are the scales reliable?

IV. Methodology

Tool construction: Tool construction is an essential part for conducting research. In the present study, the investigator developed a scale/tool to assess the knowledge, attitude and practice regarding social media.

a) Draft items of knowledge, attitude and practice scale regarding social media: Knowledge is an important source for learning new things, solving problems, creating core competitiveness and establishes new positions for individual and organization at present and for the future (Nasimi, *et. al.*, 2013). The investigator has gone through different related journals and papers for preparation of item pool of knowledge scale about social media. Forty items were included under the various dimensions of social awareness, general concept, life style, academic performance, adverse effect and utilization in the item pool for knowledge section. Then the investigator discussed with experts and some items were modified or rejected on the basis of language, irrelevant, ambiguity and clarification to the item. At last the knowledge scale was framed with 30 items by judging the face validity and content validity.

An attitude is a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related (Allport, 1935). In case of attitude scale five dimensions were determined. These are awareness, personal life and relationship, academic and cultural, engagement and necessity. A total of 30 items were included for formation of item pool for attitude section. After consulting with the field expert and resources persons, 26 items were finally selected for the final form.

Practice means what is done (WHO, 2008). On the other hand, in case of practice scale five dimensions were selected viz. academic, socialization, entertainment, informativeness and constraints. A total of 25 items were

considered after consultation with expert and resource persons. Among them finally, the 18 items were selected for final item pool of the practice section regarding social media.

b) Scoring technique for knowledge, attitude and practice scale:

The knowledge scale was based on 3-point Likert type summative rating scale of 'yes', 'no' and 'don't know'. For positive item '1' value assigned with 'yes', '0' value assigned with 'no' and also '0' value allotted with 'don't know'. For negative item '0' value allotted with 'don't know', '1' value allotted with 'no' and '0' value allotted with 'yes' (Andrade, *et. al.*, 2020). In the knowledge scale of social media, there were sufficient amount of positive and negative items/statements. The knowledge scale shows maximum and a minimum score of 30 and 0, respectively.

In the attitude scale there are three alternative options based on likerts summative rating type three point scale. These alternatives are 'agree', 'neutral' and 'disagree'. For the positive item 3 marks assigned with 'agree', 2 marks assigned with 'neutral' and 1 mark assigned with 'disagree'. For negative item 3 marks assigned with 'disagree', 2 marks assigned with 'neutral' and 1 mark assigned with 'agree'. The attitude scale also consists of sufficient number of positive and negative items. Maximum and minimum scores are 78 and 0 respectively in this scale for the subject social media.

In the practice scale there are two alternative options like 'yes' and 'no'. For correct answer will be given '1' point and for wrong answer will be given '0' point (Halder, *et. al.*, 2022). The highest and lowest scores of the practice scale are 18 and 0 respectively.

Design: In this study purposive sampling technique was used to get the relevant data. Purposive sampling method is the sub types of non-probability sampling method (Teddlie and Yu, 2007). A purposive sample is the one whose characteristics are defined for a purpose that is relevant to the study (Andrade, 2020). In this study, the investigator at first determined all the higher secondary graded students from five higher secondary school of Uttar-Dinajpur district. After that, the researcher was randomly selected fifty higher secondary graded students from those five higher secondary schools.

Participants: The investigator applied the test on 50 higher secondary graded students for determination of difficulty index and discrimination index of the items. The investigator also applied the test on 60 higher secondary graded students to calculate the reliability of the test.

Data collection: Data were collected with the help of KAP questionnaire regarding social media. KAP questionnaire was consisted of 73 items. The test was administered on higher secondary graded students in May, 2022. After selection of the final form of the scale through the determination of difficulty index (p-value) and discrimination index (DI) the test-retest was administered at the end of June, 2022.

Data analysis: After collection of data, the investigator scored the items. Then the investigator was analyzed each item-by-item analysis method. In this study items were assessed against their value of difficulty index and discrimination index. Item difficulty known as p-value refers to the proportion of samples that responded to the item correctly (Sabri, 2013). The p-values above 0.90 are very easy items and might be concept not worth testing and p-values below 0.20 indicates difficult items and should be reviewed or rejected (Boopathiraj and Chellamani, 2013). The formula of p- value:

$$P = \frac{R}{N} \times 100$$

Where, p denotes the difficulty index, R denotes the number of people who given the answer rightly and N denotes the total number of people who responded.

Item discrimination is the percentages of difference in the success of an item between high and low score respondents (Karmakar, *et. al.*, 2021). It determines the proportion to which an item discriminates the well-known respondent from the poorly known respondent. The discrimination index is also known as DI. The values of the discrimination of item were determined with the help of the given formula –

$$DI = \frac{R_U - R_L}{T}$$

Where, DI stands for discrimination index, R_U denotes the number of right responses from the upper group. R_L denotes the number of right answers from the lower group and T denotes the total number of respondents from both groups. For the determination of the test reliability, the test retest method was used. Pearson's Product Moment Method was used to calculate the correlation between two sets of scores.

V. Result

Research Question-I: What are the values of difficulty index and discrimination index of the items of the knowledge, attitude and practice scale regarding social media?

Table No 1: The p-value and DI value of the items of knowledge test regarding social media.

Item No.	p-value	DI	Item No.	p-value	DI
K1	0.94	0.07	K16	0.82	0.29
K2	0.64	0.36	K17	0.82	0.21
K3	0.68	0.50	K18	0.58	0
K4	0.72	0.50	K19	0.84	0.14
K5	0.26	0.29	K20	0.86	0.50
K6	0.86	0.43	K21	0.88	0.14
K7	0.76	0.29	K22	0.60	0.29
K8	0.70	0.36	K23	0.84	0.36
K9	0.64	0.36	K24	0.60	0.64
K10	0.58	0.21	K25	0.88	0.36
K11	0.78	0.43	K26	0.82	0.14
K12	0.68	0.57	K27	0.80	0.43
K13	0.60	0.21	K28	0.78	0.50
K14	0.68	0.36	K29	0.74	0.50
K15	0.80	0.36	K30	0.86	0.36

Table No 2: The p-value and DI value of the items of Attitude test regarding social media.

Item No.	P- value	DI	Item No.	p-value	DI
A1	0.76	0	A14	0.32	0.36
A2	0.94	0.14	A15	0.52	0.43
A3	0.30	0.50	A16	0.36	0.29
A4	0.72	0.07	A17	0.68	0.29
A5	0.38	0.79	A18	0.68	0.36
A6	0.90	0.14	A19	0.70	0.29
A7	0.76	0.43	A20	0.86	0.21
A8	0.32	0.36	A21	0.40	0.64
A9	0.32	0.71	A22	0.64	0.57
A10	0.68	0.36	A23	0.76	0.14
A11	0.58	0	A24	0.38	0.50
A12	0.76	0.29	A25	0.82	0.36
A13	0.32	0.43	A26	0.38	0.21

Table No 3: The p-value of the items of Practice test regarding social media.

Item No.	P- value	Item No.	p-value
P1	0.90	P10	0.78
P2	0.78	P11	0.48
P3	0.84	P12	0.80
P4	0.88	P13	0.86
P5	0.64	P14	0.74
P6	0.58	P15	0.96

P7	0.94	P16	0.72
P8	0.76	P17	0.40
P9	0.88	P18	0.34

Research Question - II: How many numbers of items are considered as effective items for the final scale after analyzing the items on the basis of items difficulty values and discrimination values?

Table No 4: The distribution of knowledge, attitude and practice items on the basis of difficulty index (p-value).

p-value	Total Item		
	Knowledge	Attitude	Practice
Easy ($p \geq 0.90$)	1	1	2
Moderately difficult ($0.20-0.90$)	29	25	16
Difficult ($p \leq 0.20$)	0	0	0

On the basis of set standards for the interpretation of difficulty indices 29 items of knowledge scale were identified as moderately difficult and 1 item was identified as easy and 0 item was identified as difficult. From Table-1, it is clear that in case of knowledge scale, 1 easy item was unable to satisfy the condition, this item was considered as 'poor' items. This 'poor' item was K1. In the attitude scale, 25 items were moderately difficult and 1 item was easy. So, in the attitude scale 1 item was considered as 'poor' item. This item was A2. Table-3 shows that in practice scale, 2 items were considered as 'poor' items of which one item was easy. These poor items of practice test were P7 and P15.

Table No 5: Distribution of Knowledge and Attitude items based on Discrimination Indices recommended by Ebel and Frisbie (1991).

Discrimination Index	Total Item	
	Knowledge	Attitude
Very Good ($D \geq 0.40$)	10	9
Reasonably Good ($0.30-0.39$)	8	5
Marginal ($0.20-0.29$)	7	6
Poor ($D \leq 0.19$)	5	6

According to the criteria of the discrimination index, results of the knowledge scale indicates that 5 items failed to distinguish between students of different abilities, 7 items were marginal which needs to be reviewed, 8 items were satisfactory and the function of the 10 items were very well. In case of attitude scale, 6 items failed to discriminate the different abilities of the students, 6 items were marginal, 5 items were satisfactory and 9 items function is very good.

Selection of items for the final form: On the basis of difficulty index and discrimination index (DI), 1 and 5 items of knowledge scale were considered as poor items. On the other hand, one (1) item of knowledge scale (K1) that failed to satisfy the condition based on both difficulty index (p-value) and discrimination index (DI) were eliminated. Among the remaining items, the four items of the knowledge scale, i.e. K18, K19, K21 and K26 having moderate difficulty values of 0.58, 0.84, 0.88 and 0.82 respectively had the very poor discrimination values of 0, 0.14, 0.14 and 0.14 respectively. Therefore, although these four (4) items were also excluded/ eliminated from the knowledge scale. Only five (5) items were eliminated from the final form of the knowledge scale and twenty five (25) items of knowledge scale were selected based on both difficulty value and discrimination value.

In case of attitude scale, one (1) item of attitude scale (A2) that failed to satisfy the condition based on both difficulty index (p-value) and discrimination index (DI) was eliminated. Among the remaining items five (5) items of attitude scale, i.e. A1, A4, A6, A11 & A23 having moderate difficulty values of 0.76, 0.72, 0.90, 0.58 and 0.76 respectively had the poor discrimination values of 0, 0.07, 0.14, 0 and 0.14 respectively. Only six (6) items were eliminated from the final form of attitude scale, and twenty (20) items were selected.

In case of practice scale, two (2) items were rejected on the basis of the standard set of difficulty index, and sixteen (16) items were accepted in the final form of practice scale regarding social media. According to Bichi,

any one of two item statistics like item difficulty or discrimination indices can be used to assess the quality of the items because these two indices produce almost the same result. Here the items assess their quality by difficulty index in practice scale (Bichi, 2015).

Table No 6: Item analysis of the knowledge scale regarding social media.

Serial number of the items		p-value	DI
Before	After		
K1*	-	0.94	0.07
K2	K1	0.64	0.36
K3	K2	0.68	0.50
K4	K3	0.72	0.50
K5	K4	0.26	0.29
K6	K5	0.86	0.43
K7	K6	0.76	0.29
K8	K7	0.70	0.36
K9	K8	0.64	0.36
K10	K9	0.58	0.21
K11	K10	0.78	0.43
K12	K11	0.68	0.57
K13	K12	0.60	0.21
K14	K13	0.68	0.36
K15	K14	0.80	0.36
K16	K15	0.82	0.29
K17	K16	0.82	0.21
K18*	-	0.58	0
K19*	-	0.84	0.14
K20	K17	0.86	0.50
K21*	-	0.88	0.14
K22	K18	0.60	0.29
K23	K19	0.84	0.36
K24	K20	0.60	0.64
K25	K21	0.88	0.36
K26*	-	0.82	0.14
K27	K22	0.80	0.43
K28	K23	0.78	0.50
K29	K24	0.74	0.50
K30	K25	0.86	0.36

Note:*Item Rejected

Table No 7: Item analysis of the attitude scale towards social media.

Serial number of the items		p-value	DI
Before	After		
A1*	-	0.76	0
A2*	-	0.94	0.14
A3	A1	0.30	0.50
A4*	-	0.72	0.07
A5	A2	0.38	0.79
A6*	-	0.90	0.14
A7	A3	0.76	0.43.
A8	A4	0.32	0.36
A9	A5	0.32	0.71
A10	A6	0.68	0.36
A11*	-	0.58	0
A12	A7	0.76	0.29
A13.	A8	0.32	0.43
A14	A9	0.32	0.36
A15	A10	0.52	0.43
A16	A11	0.36	0.29
A17	A12	0.68	0.29
A18	A13	0.68	0.36
A19	A14	0.70	0.29
A20	A15	0.86	0.21
A21	A16	0.40	0.64
A22	A17	0.64	0.57
A23*	-	0.76	0.14
A24	A18	0.38	0.50
A25	A19	0.82	0.36
A26	A20	0.30	0.21

Note: * Item Rejected

Table No 8: Item analysis of practice scale regarding social media.

Serial number of the items		p-value
Before	After	
P1	P1	0.90
P2	P2	0.78
P3	P3	0.84

P4	P4	0.88
P5	P5	0.64
P6	P6	0.58
P7*	-	0.94
P8	P7	0.76
P9	P8	0.88
P10	P9	0.78
P11	P10	0.48
P12	P11	0.80
P13	P12	0.86
P14	P13	0.74
P15*	-	0.96
P16	P14	0.72
P17	P15	0.40
P18	P16	0.34

Note:*Item Rejected

Table No 9: Distribution of the items after item analysis among different dimension of knowledge, attitude and practice about social media.

Test	Sl. no	Dimensions	Serial no of the items of the final list		Total items of the dimension	Total items
			Favorable	Unfavorable		
Knowledge	1	Social awareness	2	1, 3	3	25
	2	General concept	5, 7	4, 6	4	
	3	Life style	9, 10, 11	8, 12	5	
	4	Academic performance	14, 15, 16	13	4	
	5	Adverse effect	17, 19, 21	18, 20	5	
	6	Utilization	23, 25	22, 24	4	
Attitude	1	Awareness/ Consciousness		1, 2	2	20
	2	Personal life & Relationship	3, 6, 7	4, 5, 8	6	
	3	Academic & Cultural	10, 12, 13	9, 11	5	
	4	Engagement	14, 15, 17	16	4	
	5	Necessity	19	18, 20	3	
Practice	1	Academic	1, 2, 3, 4		4	16
	2	Socialization	5, 6, 7		3	
	3	Entertainment	8, 9, 10, 11		4	
	4	Informativeness	12, 13, 14		3	
	5	Constraints	15, 16		2	

Research Question-III: Are the scales reliable? A reliable instrument is an instrument which, when used several times to measure the same object, will generate the same data (Sugiyono, 2007). In our present study, test-retest method was used by the investigator to identify the reliability of the test. To determine the correlation between the two tests, Pearson's product moment method was applied. The coefficient of correlation between the test-retest scores of knowledge, attitude and practice are given in below-

Table No 10: The coefficient of correlation between test-retest scores of knowledge, attitude and practice regarding social media.

Test	Coefficient of correlation(r)
Knowledge	0.85
Attitude	0.82
Practice	0.87

Table No 11: General interpretation of reliability according to Guilford (Putri, *et. al.*, 2019).

r value	Interpretation
$r \leq 0.20$	Very Low
$0.20 \leq r \leq 0.40$	Low
$0.40 \leq r \leq 0.60$	Intermediate
$0.60 \leq r \leq 0.80$	High
$0.80 \leq r \leq 1.00$	Very High

From the above table 10, it is evident that there is a very high positive correlation between the test-retest scores of knowledge regarding social media. In case of attitude scale, there was a very high positive correlation between the test-retest scores of attitude regarding social media and there was a very high positive correlation between the test-retest scores of practice regarding social media. So it can be said, that the scale is highly reliable.

VI. Conclusion

This study has been displayed how to develop a standardized scale to assess knowledge, attitude and practice regarding social media. This tool represents good items and very high positive reliability. The tool is standardized to assess knowledge, attitude and practice regarding social media among the higher secondary graded students in the demographic area of Uttar-Dinajpur district, West Bengal. The investigator can collect appropriate data about knowledge, attitude and practice regarding social media through the use of this standardized tool which will be helpful for our academicians for innovation in teaching learning process.

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