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CONSTRUCTION AND STANDARDIZATION OF RESEARCH TOOL - SCIENTIFIC ATTITUDE

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ABSTRACT

In the present study, Scientific Attitude scale has been constructed and standardized of the B.Ed., Trainees. This scale consists of 50 statements. The simple random Sampling technique was used for this study. The sample consists of 100 B.Ed., Trainees are randomly selected from the Perambalur District. The Split-Half Co-efficient was used to standardize the tool and finally 45 statements were retained for the final study.

KEYWORDS: *Scientific Attitude, B.Ed., Trainees*.

INTRODUCTION

Education is a sort of thing that almost of us get, are skill getting are actually giving in approved school, colleges and universities or other similar places. Hence education is a lifelong process. "Any modification brought about in the behaviour of an individual as a result of his interaction with the environment constitutes learning"

Science is universal in character and it has no barriers of any land. The scientific revolution began in western troupe where modern science was born but its home is now the whole world. The term scientific attitude does not only mean that the teacher would devote himself towards acquisition of subject knowledge and its implementation in the class, and in teaching methodology but carries with it a sense of change in the thinking patterns, behaviour of the teacher and students in the day – to – day life.

SCIENTIFIC ATTITUDE

The use of science as the object or stimulus of these feeling delineates that set of attitudes known as "attitude towards science" The increased attention to the effective outcomes of science has also resulted in a proliferation of attitude research studies. More measuring techniques, and several attempt towards science on an international scale. Recent reviews of research on science attitudes also reflect the burgeoning work in this area. Sufficient studies now exist to enable researchers to conduct quantity synthesis of research results. These integrative studies, called Meta – analysis have been done for science attitudes and provide additional understanding of the accomplishments and problem in the area.

The scientific attitudes by its very name, tends to be associated solely with the area of science. There is a general agreement among investigators that a person who has a scientific point of view:-

- Looks for the natural causes of events.
- Is opening minded towards the work and opinion of others and to want information related to this problem?
- Bases opinions and conclusions on adequate evidence.
- Is curious concerning the things he observes.

OPERATIONAL DEFINITION OF THE TERMS

Scientific Attitude

An attitude is a stabilized mental set which expresses on itself in a tendency to react to any member of a class of stimulus in the same general way. A scientific attitude is an attitude which will tend to faster scientific achievement.

B.Ed. Trainees

In the present study, after graduate get training for teaching in the college of education called as B.Ed. Trainees. The Students who are studying in the College of Education are termed as B.Ed. Trainees.

CONSTRUCTION OF THE TOOL

Pilot study

The present investigator has broadly thinking for my research work and a few readymade tool or standardized tool available on the society but investigator feels that accurate scale needed to do my research on perfectly. So, the investigator coined the statements of the tool construct towards Scientific Attitude was seriously scrutinized the items and the suggestions by subject experts. They selected 50 items of the 60 items on the basis of the suitability. The necessary corrections were pointed out by the expert and all of them were taken care in the final tool. The investigator conducted this study was survey method of research and Random Sampling technique was used for this study. The size of the samples was 100 B,Ed., Trainees in Colleges of Education in Perambalur district in Tamil Nadu state.

Scoring Procedure

The investigator has constructed and standardization of Scientific Attitude Scale used for five point rating scale such as Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree statements are used and the score are given as 5, 4, 3, 2, 1 for all the positive items and negative items are scored in the reverse order.

Collection of Data

The investigator started collecting data from the selected B.Ed., Colleges. The data was collected. The investigator got prior permission from the principal of the B.Ed., Colleges for collecting the data.

VALIDATION OF TOOL

Statistical techniques used

As the analysis of the data was to be done with the help of a computer in the SPSS package, the responses collected from the tests were converted into scores as per the directions given in the inventory, were coded properly and fed into the computer system for analysis.

Reliability

The reliability of the tool was measured by Guttman Split-Half Reliability Co-efficient is an adaption of the Spearman-Brown Co-efficient, but one which does not require equal variances between the two split forms. Spilt Half Reliability, which also called parallel from Reliability or Internal Consistency Reliability. The formala of guttman is :

$$R = 2 X r / 1+ r$$

Where,

r = **Guttman split half coefficient**

R = Reliability

R = 2 X r / 1+ r

R = 2 X 0.730 /1 + 0.730

R =1.46 / 1.73

R = 0.84

Reliability Value of Scientific Attitude Scale is 0.84

Selection of items are given below

Scientific attitude scale

Item – Total Statistics

Item No	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Remarks
1	157.26	169.548	0.13	0.714	Selected
2	158.97	163.423	0.343	0.704	Selected
3	157.56	168.107	0.222	0.71	Selected
4	157.53	166.353	0.251	0.709	Selected
5	157.49	168.313	0.205	0.711	Selected
***6**	**150.46**	**68.615**	**0.259**	**0.434**	**Deleted**
7	157.24	168.043	0.187	0.711	Selected
8	158.24	177.861	-0.184	0.734	Selected
***9**	**147.64**	**68.273**	**0.308**	**0.43**	**Deleted**
10	157.48	164.717	0.295	0.706	Selected
11	157.42	166.953	0.231	0.71	Selected
12	157.42	168.024	0.15	0.713	Selected
13	157.35	165.301	0.333	0.706	Selected
14	158.61	170.301	0.038	0.72	Selected
15	157.4	168.99	0.167	0.712	Selected
16	157.31	166.357	0.274	0.708	Selected
17	157.32	166.745	0.221	0.71	Selected
18	158.68	166.523	0.147	0.714	Selected
19	157.36	164.697	0.333	0.705	Selected
20	157.48	163.949	0.31	0.705	Selected
21	157.39	167.089	0.205	0.711	Selected
22	158.68	168.725	0.097	0.716	Selected
23	157.53	165.989	0.267	0.708	Selected
24	157.48	164.717	0.295	0.706	Selected
25	157.44	167.784	0.264	0.709	Selected
26	158.79	165.663	0.226	0.709	Selected
27	157.42	171.034	0.066	0.716	Selected
***28**	**148.05**	**66.149**	**0.324**	**0.419**	**Deleted**
29	157.44	163.38	0.415	0.702	Selected
30	158.82	165.119	0.244	0.708	Selected
31	157.29	166.572	0.266	0.708	Selected
***32**	**150.39**	**67.25**	**0.322**	**0.424**	**Deleted**
33	157.37	169.185	0.142	0.713	Selected
34	158.7	167.909	0.109	0.716	Selected
35	157.35	167.139	0.217	0.71	Selected

36	157.35	166.311	0.275	0.708	Selected
37	157.44	167.663	0.197	0.711	Selected
38	158.56	164.835	0.188	0.712	Selected
39	157.45	169.664	0.134	0.714	Selected
40	157.65	165.987	0.231	0.709	Selected
41	157.57	167.136	0.145	0.714	Selected
42	158.22	169.062	0.062	0.72	Selected
43	157.39	169.109	0.14	0.713	Selected
44	157.45	165.22	0.282	0.707	Selected
45	157.58	167.579	0.131	0.715	Selected
46	158.26	169.184	0.066	0.719	Selected
***47**	**148.04**	**67.13**	**0.261**	**0.428**	**Deleted**
48	157.5	167.424	0.152	0.713	Selected
49	157.67	167.476	0.161	0.713	Selected
50	157.77	169.33	0.061	0.719	Selected

Note: *Deleted Items

Validity of the Tool

Validity reveals the merits of our measurement. This scientific attitude scale was given to the concern subject experts in order to find out its content validity. The experts granted that the items in the scale provided adequate coverage of the concept do to the work.

Scientific attitude scale

SA- Strongly Agree, **A**- Agree, **UD**- Undecided, **DA**- Disagree, **SDA**- Strongly Disagree,

S. No	Statements	S A	A	U D	D A	SDA
1	Scientists should be curious to find out the cause of the abnormal birth.					
2	Science students should not be eager to conduct new experiments.					
3	The scientists should continue their efforts in collecting complete information about the Mars.					
4	I will to interest in reading to more science related books.					
5	Every novel situation should not be viewed in an interrogate war.					
6	Positive criticism benefits the advancement of knowledge					
7	A senior scientist should not accept the new techniques suggested by another.					
8	Knowledge is promoted if every new idea in a field is accepted immediately after it is reported.					
9	Criticism is useful in the acquisition of knowledge.					
10	Testing of knowledge must be procedural.					
11	In unscientific discussions one may bear that someone is willing to prove that a certain idea is absolutely correct.					
12	Knowledge should be considered tentative.					
13	Some positive facts of a concept conclude that the whole concept is true.					
14	Sufficient proofs should be collected before accepting an idea.					
15	Scientific explanations should be preferred to the romantic stories of astrologers and magicians.					
16	Fortune tellers usually flourish in scientific communities.					
17	For weather predictions, magicians and astrologers should not be consulted.					
18	Intelligence is the main factor that contributes to the advancement of knowledge.					
19	The scientists should have to find out the occurrences of the undesired events in					

	nature.					
20	To learn science books are increase the creative skills.					
21	A conclusion based on insufficient evidences should neither be accepted.					
22	An idea should not be accepted if it is proved to be poor.					
23	Now it is not possible to develop more sensitive X ray machine.					
24	All hypotheses should not be favoured in the absence of sufficient proof.					
25	Among scientists astrologers are more efficient to produce results.					
26	A successful scientist is more materialistic than a politician.					
27	We should not depend on the presumptions of astrologers and magicians regarding the weather.					
28	Main purpose of performing experiments is to get through the practical examination.					
29	If a tea company offers a bribe to any scientist, then he should not disclose the research finding about the adverse effects of tea.					
30	A scientist should not be influenced by any external social force in revealing his result.					
31	Unacceptable new idea by all people should not be given due consideration.					
32	Science is not being blamed for the destructive weapons that it has produced.					
33	Some people often try to express any of their views in the general discussion.					
34	Due to fast explosion of knowledge and theories which stand true today may be disproved tomorrow.					
35	When traditional beliefs are in conflict with scientific discoveries it is better to accept the traditional beliefs.					
36	If a science teacher fails to arrive at the expected results during demonstration, he should try to discuss the possible causes of his failure.					
37	An idea once accepted should not be put to test.					
38	Researcher / scientist should suspend his judgment in the absence of sufficient data.					
39	Those who die in youth, either by some accident or by committing suicide, turn out to be ghosts after their death.					
40	Superstition is a clear cut sign of ignorance.					
41	Some diseases can be cured by reciting mantras.					
42	Illness is due to curse of God.					
43	We should not believe that small pox, cholera and other diseases are the products of Devine anger.					
44	People should not start his work when the way is crossed by a cat.					
45	If one sneezes at the time of commencing a new task, one should start it later.					

CONCLUSION

The investigator tool consists of 50 statements. Random sampling technique was used for this study. The sample consists of 100 B.Ed., Trainees are randomly selected. The Split-Half Co-efficient was used to standardized the tool and finally 45 items are selected remaining items are deleted to final study. The investigator is hopeful that this scale would be helpful to measure scientific attitude scale of B.Ed., Trainees. Hence, this tool will be very useful for the investigator and it may be utilized and extended in the same for the future researchers.

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