

Role of Teacher Educational Institutions in Developing Attitude of Student Teachers towards Science

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Abstract

There is a great need to identify and develop positive attitude towards science subject of student teachers. The time has come to increase our efforts to develop positive attitude towards science subject among teachers, student teachers and school children. This is an immediate requirement of the present day. Here, the role of Teacher Educational institution is vital. This paper reports on attitude of student teachers towards science and the role of Teacher Educational institutions in developing it. The sample consists of 1080 student teachers of Madurai revenue district. A scale on attitude towards science was used to get the data from the student teachers. Percentage analysis, Mean, Standard deviation and 't' tests were used for analyzing the data. The results showed that there is significant difference in attitude towards science of Government Aided and Self Finance College student teachers.

Keywords: Attitude towards science, Student teachers, Teacher Educational Institutions.

Teacher Education is an integral part of any educational system. Teaching is both a skill and an art (Aggarwal, 1964). Mass literacy goals as well as the emergency of technology transferred the very character of teacher training and its philosophy. The National Policy on Education 1986 reflects precisely this change in the concept and practice (Aggarwal, 2006).

The term 'teacher education' (as opposed to teacher training) implies the lifelong development of pedagogical and disciplinary knowledge in relation to and understanding of theories of learning and development, the historical and

philosophical contexts of education and the ability to adapt instruction to a variety of learning situations. (Crow, 1973)

An attitude is an emotional reaction towards a person or thing. It is a personal response to an object, developed through experience which can be characterized as favourable or unfavourable. (Dhandapani S 2006) The use of science as the object or stimulus of these feelings delineates that set of attitudes known as 'attitude towards science'. (Baskara rao, 1997)

There is a wide spread belief among scientists and science educators that attitudes towards science are negative than is

desired. Declining enrolment and personal experiences have created a generally discouraging situation (Conant,1951). According to International Encyclopedia of Education, teachers and principals report their belief that the public's image towards science has declined in recent years.

Need for the Study

As one of the researchers is a teacher educator working in self finance teacher education institution, the investigator had informal chats with the B.Ed. students and came to know about their level of attitude towards science. He came to know that many student teachers did not possess adequate level of attitude towards science very much needed for them to undergo teacher education programme successfully that would help them to become successful teachers in the future and prepare the youth for a bright future of the nation. Under these circumstances, the investigator has decided to undertake a comparative analysis on the attitude towards science of student teachers of Government aided and self finance teacher educational institutions.

Objectives

- To find out the level of attitude towards science and its dimensions of student teachers.
- To find out whether there is any significant difference in the attitude towards science and its dimensions of student teachers with respect to their type of management.

Hypotheses

- The level of attitude towards science and its dimensions of student teachers is moderate.
- There is no significant difference in the attitude towards science and its dimensions of student teachers with respect to their type of management.

Methodology

Survey method of research was adopted for the study.

Population and Sample for the Study

The population for the present study consists of all B.Ed. students of Madurai revenue district.1080 B.Ed. students from 20 colleges of education, Madurai revenue district were selected through random sampling technique for the study.

Tools Used for the Study

For the present study, the investigator used the following tools,

- Attitude towards Science Scale prepared and validated by the investigator.

A Likert scale was constructed. (Edwards, 1967)The questionnaire consists of 25 items; among them 13 are positive items and 12 are negative items. The tool includes four dimensions namely personal confidence about the subject matter, involvement with the subject, usefulness of the subject content and perception of teacher's attitude. Few sample statements are given below.

- I am sure that I can learn science
- Science has been my worst subject.
- I watch science related TV programme at least once a month
- I am afraid of doing science experiments inside the class room
- Science is a worthwhile, necessary subject
- I would talk to my science teacher about a career which uses science.

Personal Data Sheet prepared by the investigator

Data Analysis

To interpret the raw data, analyses were done using Percentage analysis, Mean, Standard deviation and 't'test. The results of the analyses are presented in the following tables.

1. The level of attitude towards science and its dimensions of student teachers is moderate.

Table 1.1. Level of attitude of student teachers towards science and its dimensions

Dimensions	Low		Moderate		High	
	N	%	N	%	N	%
<i>Personal Confidence about the subject matter</i>	257	23.8	576	53.3	247	22.9
<i>Involvement with the subject</i>	279	25.8	521	48.2	280	25.9
<i>Usefulness of the subject content</i>	289	26.8	493	45.6	298	27.6
<i>Perception of teacher's attitude</i>	322	29.8	456	42.2	302	28.0
<i>Attitude towards science in total</i>	278	25.7	531	49.2	271	25.1

- The level of attitude towards science and its dimensions of student teachers in terms of type of management is moderate.

Table 1.2. Level of attitude towards science and its dimensions of student teachers in terms of type of management

Dimensions	Type of management	Low		Moderate		High	
		N	%	N	%	N	%
<i>Personal confidence about the subject matter</i>	Govt. Aided	15	16.7	34	37.8	41	45.6
	Self Finance	242	24.4	542	54.7	206	20.8
<i>Involvement with the subject</i>	Govt. Aided	19	21.1	41	45.6	30	33.3
	Self Finance	260	26.3	480	48.5	250	25.3
<i>Usefulness of the subject content</i>	Govt. Aided	10	11.1	37	41.1	43	47.8
	Self Finance	279	28.2	456	46.1	255	25.8
<i>Perception of teacher's attitude</i>	Govt. Aided	14	15.6	37	41.1	39	43.3
	Self Finance	308	31.1	419	42.3	263	26.6
<i>Attitude towards science in total</i>	Govt. Aided	14	15.6	30	33.3	46	51.1
	Self Finance	264	26.7	501	50.6	225	22.7

Null Hypotheses

- There is no significant difference in the attitude towards science and its dimensions of student teachers with respect to their type of management.

Table 1.3. Significant difference between Government aided and self finance college student teachers in their attitude towards science and its dimensions.

Dimen-sions	Type of Manage-ment	Mean	SD	Calcu-lated 't' Value	'p' Value	Remarks at 5% Level
<i>Personal confidence about the subject matter</i>	Govt. Aided	28.36	6.127	4.998	0.000	S
	Self Finance	25.66	4.768			
<i>Involvement with the subject</i>	Govt. Aided	27.14	4.796	2.150	0.032	S
	Self Finance	25.94	5.135			
<i>Usefulness of the subject content</i>	Govt. Aided	22.90	4.334	5.082	0.000	S
	Self Finance	20.27	4.731			
<i>Perception of teacher's attitude</i>	Govt. Aided	12.02	2.365	3.924	0.000	S
	Self Finance	10.82	2.809			
<i>Attitude towards science in total</i>	Govt. Aided	90.24	14.437	5.291	0.000	S
	Self Finance	82.46	13.268			

It is inferred from the above table that there is significant difference between Government aided and self finance college student teachers in their attitude towards science in total and its dimensions personal confidence about the subject matter, involvement with the subject, usefulness of the subject content and perception of teacher's attitude.

From the mean value, it is found that Government aided college student teachers are better (M = 90.24, 12.02, 22.90, 27.14 and 28.36 respectively) in their attitude towards science in total and its dimensions personal confidence about the

subject matter, involvement with the subject, usefulness of the subject content and perception of teacher's attitude than the self finance college student teachers (M=82.46, 10.82, 20.27, 25.94 and 25.66 respectively).

Findings

1. (a) 22.9% of the student teachers have high level of personal confidence about the subject matter.
- (b) 25.9% of the student teachers have high level of involvement with the subject.
- (c) 27.6% of the student teachers have high level of usefulness of the subject content.
- (d) 28% of the student teachers have high level of perception of teacher's attitude.
- (e) 25.1% of the student teachers have high level of attitude towards science in total.
2. (a) 45.6% of the student teachers of Government Aided Colleges have high level of personal confidence about the subject matter.
20.8% of the student teachers of Self Finance Colleges have high level of personal confidence about the subject matter.
- (b) 33.3% of the student teachers of Government Aided Colleges have high level of involvement with the subject.
25.3% of the student teachers of Self Finance Colleges have high level of involvement with the subject.
- (c) 47.8% of the student teachers of Government Aided Colleges have high level usefulness of the subject content.
25.8% of the student teachers of Self Finance Colleges have high level of usefulness of the subject content.
- (d) 43.3% of the student teachers of Government Aided Colleges have high level of perception of teacher's attitude.
26.6% of the student teachers of Self Finance Colleges have high level of perception of teacher's attitude.

- (e) 51.1% of the student teachers of Government Aided Colleges have high level of attitude towards science in total.
22.7% of the student teachers of Self Finance Colleges have high level of attitude towards science in total.

3. There is significant difference between Government aided and self finance college student teachers in their attitude towards science in total and its dimensions personal confidence about the subject matter, involvement with the subject, usefulness of the subject content and perception of teacher's attitude.

Discussion

From the present investigation, it is found that only 25.1% of the sample has high level of attitude towards science. While studying in terms of dimensions of attitude towards science very small amount of the respondents have high level of personal confidence about the subject matter, involvement with the subject, usefulness of the subject content and perception of teacher's attitude. Moreover majority of the sample have moderate level of attitude towards science and its dimensions. This implies that the student teachers might have been exposed to minimum levels of science activities in their under graduate level and hence they possess a moderate level of attitude towards science.

With the sample of the study classified in terms of their type of management, it is observed that the 51.1% of Government Aided College student teachers have high level of attitude towards science and only 22.7% of Self Finance College student teachers have high level of attitude towards science. In the dimensions, personal confidence about the subject matter, involvement with the subject, usefulness of the subject content and perception of teacher's attitude, Government Aided College student teachers are found to be better than the Self Finance College student teachers. This shows the fact that Government Aided College student teachers have wide range of exposure of science subject than their counterparts. Government Aided Colleges with good infrastructural facilities, experienced faculty using creative methods in teaching science influences the student's attitude.

From the analysis of data in the present investigation, Government Aided College student teachers differ

significantly in their personal confidence about the subject matter, involvement with the subject, usefulness of the subject content and perception of teacher's attitude and attitude towards science in total. This shows the fact that Government Colleges are well equipped in their resources such as library, science laboratory and educational technology labs, qualified and experienced faculties assisting students in their science related activities.

Suggestions

The authors suggested the following for improving the attitude towards science of student teachers in teacher educational institutions.

- ❑ Self finance Colleges of education should equip themselves with qualified teacher educators, good library and science laboratory facilities.
- ❑ Seminars and Conferences on science education will improve the attitudinal levels of student teachers towards science.
- ❑ The institution can provide rich environment to improve the science learning skill of the students.
- ❑ Science exhibitions should be organized in institutions to stimulate student teachers natural curiosity.
- ❑ Science club, eco club and nature club should be established in institutions to encourage the student teachers to participate in club activities.

Conclusion

The authors concluded that the type of management wise analysis on attitude towards science of student teachers brought out the fact Self Finance College student teachers are lacking in attitude towards science and its dimensions personal confidence about the subject

matter, involvement with the subject, usefulness of the subject content and perception of teacher's attitude.

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