RELATIONSHIP BETWEEN INTELLIGENCE AND SCIENTIFIC ATTITUDE

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People have to face the realities of the world of work and life which have been transformed as a result of the inventions and discoveries in science and technology. Students need to understand the scientific method and the way in which scientists behave. According to NCF (2005) "Science is a dynamic, expanding body of knowledge, covering ever new domains of experience. In a progressive forward-looking society, science can play a truly liberating role, helping people escape from the vicious cycle of poverty, ignorance and superstition." Teaching of science should lead to the development of scientific attitude as well as intellectual abilities. Science is to be learnt as a discipline too. Students have to work with hands and tools to develop new advanced tools and knowledge. Curriculum should provide opportunities for systematic observation and experimentation leading to discovery and verification of theoretical principles. NCF(2005) also recommends that the curriculum should engage the learner in acquiring the methods and processes that lead to generation and validation of scientific knowledge and nurture the natural curiosity and creativity of the child in science. Misra (2008) thinks that there are seven dimensions of action and intent aspects of scientific attitude. These dimensions are- suspended judgement, critical mindedness, openmindedness, objectivity, questioning attitude, willingness to change opinion and respect for evidence. The development of overall scientific attitude and various aspects and dimensions of it may be influenced by students' intelligence. The research literature on the relationship between scientific attitude and intelligence is quite scanty. So, the present study has been undertaken to explore how intelligence is related to various dimensions and aspects of scientific attitude.

OBJECTIVES OF THE STUDY:

Objectives of the present study are as follows:

1. To find out the relationship between intelligence and scientific attitude among boys.
2. To find out the relationship between intelligence and scientific attitude among girls.

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HYPOTHESES:

Following hypotheses were tested:

1. Intelligence is not significantly related to scientific attitude among boys.
2. Intelligence is not significantly related to scientific attitude among girls.

METHODOLOGY:

Sample: Sample for the present study consisted of 50 boys and 50 girls studying in class IX of two schools of Allahabad city.

Tools used: 'Scientific Attitude Questionnaire' was used to measure scientific attitude. 'Test of General Mental Ability' was used to measure intelligence. Both tools have been constructed by the present investigator.

Statistics used: Product moment coefficients of correlation were computed to find out the relationship between intelligence and scientific attitude among boys as well as girls.

RESULTS AND DISCUSSION :

Table 1 showing Relationship between girls' intelligence scores and their scores on various dimensions of overall scientific attitude and its intent and action aspects.

S.No	Dependent variable	Correlations for		
.		SA- I	SA-A	SA- T
1	Total	.447**	.275	.465**
2	suspended judgement	.397*	-.119	.260
3	questioning attitude	.295*	-.001	.262
4	respect for evidence	.404**	.395**	.468**
5	objectivity	.252	.036	.224
6	critical-mindedness	.302*	.150	.322*
7	willingness to change	.393**	.316*	.460**
8	open-mindedness,	.404**	.126	.396**

SA-T: Scientific Attitude Total, SA-I: Scientific Attitude Intent,
SA-A: Scientific Attitude Action
*/** significant at .05/.01 level

Observation of the table 1 shows that out of 24 correlations for girls, fourteen are significant. So, it can be inferred that for girls intelligence is positively related to overall scientific attitude and intent aspect of it; intelligence is also positively related to suspended judgement, critical-mindedness, open-mindedness, questioning attitude, willingness to change opinion and respect for evidence dimensions of intent aspect of scientific attitude; intelligence is not related to objectivity dimension of intent aspect of scientific attitude; intelligence is not related to action aspect of scientific attitude and suspended judgement, critical-mindedness, open-mindedness, objectivity and questioning attitude dimensions of it; respect for evidence and willingness to change opinion dimensions of action aspect of scientific attitude are positively related to intelligence; critical mindedness, open-mindedness, willingness to change opinion and respect for evidence dimensions of overall scientific attitude are positively related to intelligence; and suspended judgement, questioning attitude and objectivity dimensions of overall scientific attitude are not related to intelligence.

Table 2 showing Relationship between boys' intelligence scores and their scores on various dimensions of overall scientific attitude and its intent and action aspects

S.No.	Dependent variable	Correlations for		
		SA- I	SA-A	SA- T
1	Total	.137	.133	.148
2	suspended judgement	.146	.300*	.228
3	questioning attitude	.215	.064	.205
4	respect for evidence	.185	.090	.145
5	objectivity	-.068	.244	.038
6	critical-mindedness	.157	-.141	.095
7	willingness to change	.016	-.051	-.006
8	open-mindedness,	.161	.134	.179

*/** significant at .05/.01 level

Table 2 shows that for boys correlations between intelligence and critical-mindedness, open-mindedness, objectivity, questioning attitude, willingness to change opinion and respect for evidence dimensions of intent and action aspects of scientific attitude are not significant at .05 level. This reveals that most of the dimensions of scientific attitude are not related to intelligence. The correlation between intelligence and suspended judgement dimension of action aspect of scientific attitude is significant. It shows that intelligence is positively related to suspended judgement dimension of action aspect of scientific attitude. The correlation between intelligence and suspended judgement dimension of intent aspect of scientific attitude is not significant. It shows that intelligence is not related to suspended judgement dimension of intent aspect of scientific attitude. Correlations for overall scientific attitude as well as critical-mindedness, open-mindedness, willingness to change opinion and respect for evidence are significant They point to existence of positive relationship between intelligence and overall scientific attitude as well as critical-mindedness, open-mindedness, willingness to change opinion and respect for evidence dimensions of it. Correlations for suspended judgement, questioning attitude and objectivity dimensions of overall scientific attitude are not significant. This means that intelligence is not related to suspended judgement, questioning attitude and objectivity dimensions of overall scientific attitude.

References

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