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ATTITUDE OF SECONDARY SCHOOL STUDENTS TOWARDS INQUIRY PEDAGOGY: ROLE OF GENDER AND FATHER'S QUALIFICATION

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Abstract

The present paper was an attempt to study the attitude of secondary school students towards inquiry pedagogy with respect to Gender and father's qualification. The sample consisted of 330 students out of these 123 were boys and 207 were girls. Attitude towards inquiry pedagogy scale (2016) developed by the investigator was used to assess the attitude. The scale included 12 dimensions. The result of t-test revealed that Students i.e. girls and boys had equal (favourable) level of attitude towards inquiry pedagogy. Students with father qualification upto12th had possessed more favourable attitude than father qualification upto 10th.Students with father qualification upto B.A. had possessed more favourable attitude than father qualification upto 10th . Students with father qualification upto12thandupto B.A. had equal (favourable) level of attitude towards inquiry pedagogy.

Keywords: Inquiry Pedagogy, Constructive approach of teaching

Introduction

Inquiry-based learning is primarily a pedagogical method developed on the basis of school of constructivism. The origin of the modern day concept of science teaching as inquiry lie with the 1960s. Dewey (1938) is generally accepted as the founder of inquiry-based learning although some trace it back to Socrates and his approach of questioning leading to development of self-knowledge.

Inquiry pedagogy assists collective decision making through open discussion and by encouraging and recognizing multiple views. The need of the hour is to deepen the understanding of the subject matter and the mode of thinking about how the subject matter is to be taught. Inquiry is a set of interrelated processes by which students pose questions about the natural world and investigate phenomena; in doing so, students acquire knowledge and develop a right understanding of concepts, principles, models and theories. Inquiry learning involves developing questions, making observations, doing research to find out what information is already recorded, developing methods for experiments, developing instruments for data collection, collecting, analyzing, and interpreting data, outlining possible explanations and creating predictions for future study.

Review of related literature

Literature relevant to present study was examined.Gibson (2002) revealed that middle school students maintained a more positive attitude towards science through inquiry-

based science program. Garcia (2003) studied that an inquiry based, hands-on approach is the best way to teach science. Sandifer (2005) emphasized the importance of using inquiry-based learning to help students draw conclusions.Seroussi (2005) found that teachers' beliefs about student learning and inquiry instruction are related to their pedagogical practices. Ebenezer and Zoller (2006) found that teaching style appears to be the major determinant of high school students' attitude towards science and science teaching. Madhok (2006) revealed the longitudinal impact of an eigth-grade inquiry curriculum on students' beliefs and achievement in science. Kilinc (2007) investigated that inquiry based laboratory activities are more permanent, more enjoyable, and more pupil centered than the traditional methods.Shadreck (2012) found that students' perceptions of their learning environment in science significantly associated with their attitudes. Students from rural school holding less favourable perceptions than students in urban schools. Female students generally hold more positive perceptions of the learning environment than male students. Abdi (2014) found a significant difference in the mean scores of academic achievement test of inquiry-based learning class compare to traditional teaching class.The mean score of inquiry-based learning class was higher than traditional class.

OBJECTIVES OF THE STUDY

To compare the attitude towards Inquiry Pedagogy of ninth class students on the basis of gender, type of family, father qualification and mother qualification.

METHOD

Sample: The present study was conducted on the students from Central Board of Secondary Education schools of Sangrur District. Students were approached by randomly. They were explained the purpose. The personal identity and name of school was not taken. The sample comprised of 330 students out of these 123 were boys and 207 were girls were selected through stratified random sampling technique.

Tool: Attitude Scale towards inquiry pedagogy(2016) developed by investigator was used. The scale consists of 90 statements with five point response category i.e. Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree. It includes 12 dimensions i.e. Discussion,Demonstration, Games, Laboratory Activities, Construction of ideas, Posters (Charts, Models), Projects, Questioning, Seminars, Visits, Quizzes, Co-operative/ Group activities. The item analysis of scale was done on sample 330 in which 124 items (Statements) were constructed with five alternatives. 12 items were modified in the light of suggestions given by the judges. 7 items were rejected by most of the judges, at last 117 items were retained for statistical item analysis. Total 90 items were selected as final items after item analysis, on this final draft reliability coefficient was calculated 0.829.Content validity was ensured.

Analysis and Interpretation

Table No. 1 Comparison of Attitude towards inquiry pedagogy on the basis of gender

Gender	N	Mean	S.D.	Std. Error Mean	df	t-value	Result
Boys	123	331.93	44.970	4.055	328	1.045	Not Significant
Girls	207	327.59	30.262	2.103			

*Note=Criterion of neutral attitude=270 total number of items (90) is multiplied by number of mid response category(3) i.e. 90×3= 270. Hence, mean score less than 270

indicate unfavourable/negative attitude and higher mean score indicate favorable/positive attitude.

The table 1reveals that t-value for gender is 1.045,whichis not significant.It means mean scores of girls and boys regarding attitude towards inquiry pedagogy does not differ significantly.On the basis of this the null hypothesis that there was no significant difference between girls and boys with respect to attitude towards inquiry pedagogy was not rejected. Hence, it may be concluded that both girls and boys had equal (favourable) level of attitude towards inquiry pedagogy.

Table No. 2 Comparison of Attitude towards inquiry pedagogy on the basis of father qualification i.e. 10th or 12th.

Father Qualification	N	Mean	S.D.	Std. Error Mean	df	t-value	Result
10^{th}Pass	99	321.09	50.594	5.085	241	1.964	Significant
12^{th}Pass	144	330.88	26.471	2.206			

The table 2 reveals that t-value for father qualification is 1.964,which is significant at 0.05 level.It means mean scores of students with father qualification upto 10^{th} and upto 12^{th}. regarding attitude towards inquiry pedagogy differ significantly. On the basis of this the null hypothesis that there was significant difference between students with father qualification upto $10^{th}$and 12^{th}.with respect to attitude towards inquiry pedagogy was rejected. Hence, it may be concluded that students with father qualification upto10^{th}andupto 12^{th} had not equal level of attitude towards inquiry pedagogy.

Further the mean score of students with father qualification upto 10^{th} was lower than the students with father qualification upto12^{th} .It may be concluded that although both had favourable attitude but the students with father qualification upto12^{th} possessed more favourable attitude than father qualification upto 10^{th} .

Table No. 3 Comparison of Attitude towards inquiry pedagogy on the basis of father qualification i.e. 10^{th} or B.A.

S.No.	Father Qualification	N	Mean	S.D.	Std. Error Mean	df	t-value	Result
1.	10^{th}Pass	99	321.09	50.594	5.085	184	2.360	Significantat 0.05 level
2.	B.A. Pass	87	335.69	29.567	3.170			

The table reveals that t-value for father qualification is 2.360,which is significant at 0.05 level.It means mean scores of students with father qualification upto 10^{th} and upto B.A. regarding attitude towards inquiry pedagogy differ significantly. On the basis of this the null hypothesis that there was significant difference between students with father qualification upto $10^{th}$and upto B.A. with respect to attitude towards inquiry pedagogy was rejected.

Further the mean score of students with father qualification upto10^{th} was lower than the students with father qualification uptoB.A.It may be concluded that although both had favourable attitude but the students with father qualification upto B.A. had possessed more favourable attitude than father qualification upto10^{th}.

Table No. 4 Comparison of Attitude towards inquiry pedagogy on the basis of father qualification i.e. 12th or B.A.

Father Qualification	N	Mean	S.D.	Std. Error Mean	df	t-value	Result
12thPass	144	330.88	26.471	2.206	229	1.281	Not Significant
B.A. Pass	87	335.69	29.567	3.170			

The table reveals that t-value for father qualification is 1.281,which is not significant.It means mean scores of students with father qualification upto 12th and upto B.A. regarding attitude towards inquiry pedagogy does not differ significantly. On the basis of this the null hypothesis that there was nosignificant difference between students with father qualification upto 12th and upto B.A. with respect to attitude towards inquiry pedagogy is accepted. Hence, it may be concluded that both students with father qualification upto 12thand upto B.A. had equal (favourable) level of attitude towards inquiry pedagogy.

Findings

1. Girls and Boys had equal (favourable) level of attitude towards inquiry pedagogy.
2. Students with father qualification upto12thhadpossessed more favourable attitude than father qualification upto10th .
3. Students with father qualification upto B.A. had possessed more favourable attitude than father qualification upto10th.
4. Students with father qualification upto12thandupto B.A. had equal (favourable) level of attitude towards inquiry pedagogy.

Discussion

The findings of the present study revealed that 9th class students possessedfavourable attitude toward inquiry pedagogy. On the basis of family and mother qualification no difference were found. The reason behind favourableness might be active involvement of student in inquiry pedagogy activities. There were 12 dimensions. All dimensions indicate cognitive activeness of students. Common experience of teachers that students enjoy activities which involve physical manipulation of objects in questioning, discussion, games etc. Hence, on rational basis the findings of the study are supporting/ in tune with general experience of teachers.

No study was found conducted on similar objectives with present study.Some previous findings on inquiry pedagogy can be observed here such as Gibson (2002) revealed that middle school students maintained a more positive attitude towards science through inquiry-based science program. Garcia (2003) studied that an inquiry based, hands-on approach is the best way to teach science. Sandifer (2005) emphasized the importance of using inquiry-based learning to help students draw conclusions. Seroussi (2005) found that teachers' beliefs about student learning and inquiry instruction are related to their pedagogical practices. Ebenezer and Zoller (2006) found that teaching style appears to be the major determinant of high school students' attitude towards science and science teaching. Madhok (2006) revealed the

longitudinal impact of an eigth-grade inquiry curriculum on students' beliefs and achievement in science. Kilinc (2007) investigated that inquiry based laboratory activities are more permanent, more enjoyable, and more pupil centered than the traditional methods. Hemaletha (2009) studied inquiry approach in enhancing research skills among secondary school students. Hagop and Saouma (2010) indicated that explicit and reflective discussions following inquiry-based laboratory activities enhanced students' views of the target nature of science aspects more than implicit inquiry-based instruction. Nayar and Senapaty (2011) showed that learning in constructivist strategy improve students' overall creative ability as well as other two different dimensions (Fluency, Flexibility) and no such difference found in case of Originality aspect of Creative Ability Test. Shadreck (2012) found that students' perceptions of their learning environment in science significantly associated with their attitudes. Students from rural school holding less favourable perceptions than students in urban schools. Female students generally hold more positive perceptions of the learning environment than male students. Mohalik (2013) found that (i) There is no significant difference in pedagogical content knowledge and classroom teaching of male and female mathematics teachers, (ii) There is a significant difference in pedagogical content knowledge and classroom teaching of mathematics teachers in relation to qualification and experience. The teachers having higher qualification and teaching experience found having better pedagogical content knowledge and classroom teaching, (iii) The pedagogical content knowledge and classroom teaching of mathematics teachers is positively related both with respect to total sample and sub groups.Abdi (2014) found a significant difference in the mean scores of academic achievement test of inquiry-based learning class compare to traditional teaching class.The mean score of inquiry-based learning class was higher than traditional class. Xie (2014) showed that the level of teachers' knowledge on nature of science, teachers' attitude and belief towards inquiry teaching, and the implementation of inquiry-based learning are at the medium level; there is no significant difference in the implementation of inquiry-based learning according to the teachers' years of experience and there are significant relationship between teacher' knowledge on nature of science, attitude and belief towards inquiry teaching with the implementation of inquiry-based learning. These findings implicate that teacher' knowledge, attitude and belief are the three main predictors for the implementation of inquiry-based learning in the teaching of science in primary schools in China.

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