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A COMPARATIVE ATTITUDE OF BOYS AND GIRLS TOWARDS THE SUBJECT OF CHEMISTRY

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ABSTRACT

This study examined to compare the attitude of boys and girls towards chemistry in selected secondary schools of District Toba Tek Singh, Punjab, Pakistan. Three hundred and six (406) students in which 206 boys and 200 girls were selected through proportionate sampling techniques from the total students of class 9th and 10th of secondary schools. Data were collected using validated reliable questionnaire and analyzed by descriptive statistics determining frequencies, percentages, mean, standard deviation and t-test. It was found that in most aspects boys and girls have positive attitude towards chemistry subject and there is no significant difference between boys and girls attitude towards this subject. This positive attitude might be associated with confidence, lack of anxiety, enjoyment, and good performance in chemistry.

Key Words: Comparison, Attitude, Chemistry, Boys & Girls, Secondary Level

1. INTRODUCTION

Attitude is a mix of feelings, likes and dislikes that predicts conduct of a person. Attitude of a learner is known to affect perception and degree of retention of a piece of information. Positive attitude may be regarded as an attitude which is accepted by the community at a large and is helpful in adjustment of an individual in the community and Negative attitude is regarded as an attitude which is not accepted by the community. Performance of students in Chemistry (just like other subjects) is dependent on several factors. Attitude is one of those factors. High performance is generally a basic goal in any life struggle and performance may be enhanced by molding the attitude positively (Festus, 2007). Actually positive attitude helps in involvement of students in their studies.

Positive attitude is essential in successful learning (Mohamed and Waheed, 2011). Programmed instruction can make attitude favorable for a subject. Positive attitude may also be developed with the use of self-learning strategies and students involving techniques such as projects or assignments (Udousoro, 2000; Popoola, 2002). Learning student's attitude toward a particular subject is of vital importance in achieving maximum learning outcomes.

Attitude of student may be affected and changed on the basis of several factors like attitude of teacher who is teaching a particular subject, difficulty level of content being taught, involvement of parents, gender, interest related to future career and social factors (Eremie & Ekpete, 2008) By adjusting physical environment of class room attitude may be changed (Wan and Mat, 2013). Attitude of teacher is another factor that can affect attitude of students (Koch, 2005). Syllabus and its content can also affect attitude. Loads of information in books may render the attitude to be negative. Peers and other students interacting with each other can affect the attitude of a student.

2. MATERIALS AND METHODS

The purpose of this present study was to find out the attitude of students towards chemistry and to compare the attitude of boys and girls towards the subject of chemistry. Targeted population of this research was constituted up of the students of science group in public sector schools in district Toba Tek Singh. Data obtained from School Information System on 01-04-2018 showed that there are 35451 students (15852 in 9th and 19599 in 10th) studying in public schools of district Toba Tek Singh. A representative sample was taken from the targeted population using multistage sampling technique. The sample consisted up of 406 students. 206 boys and 200 girl students were in the sample. Sample was selected in such a way that ensured almost equal participation of students from rural and urban areas. Initially two tehsils were selected randomly with the help of draw. Two selected tehsils were tehsil Toba Tek Singh and tehsil Pirmahal. A list of all high and higher secondary schools present in these two tehsils was obtained from online portal School Information System. List was divided in two groups depending upon their gender i.e. male and female schools. These lists were arranged on the basis of descending EMIS codes. After arranging lists 40 schools were selected from these lists systematically. A questionnaire was designed under the suggestion and guidance of the supervisor and validated by other experts conducting research in education department of UAF. This questionnaire was based on Likert scale. It consisted up of 46 items. Pilot study was conducted on a batch of 50 students selected outside the targeted population. Chronbach's alpha was found to be 0.824. As the nature of study was descriptive the descriptive statistics mean, percentage and standard deviation were used to reach on the conclusion. Inferential statistics T-Test was used to compare attitude of both genders. Analysis of the data was a

huge task and required a lot of time if it would have been done manually. To ensure accuracy and to save time software called Statistical Package for Social Sciences (SPSS-16) was employed.

3. RESULTS AND DISCUSSION

The following tables answered the research question which states that: what is the difference between the boys and girls attitude towards the chemistry subject?

Table 1.1: Distribution of responses that teacher's encouraging behavior increases interest of student

Categories	Frequency	Percent	Mean	Std. Deviation	t-value	P
Strongly Agree	226	55.7				
Agree	100	24.6				
Neutral	38	9.4	1.81	1.17	2.40	0.02
Disagree	15	3.7				
Strongly Disagree	27	6.7				
Total	406	100.0				

As represented in table 1.1 students reported that encouraging behavior increases their interest in the subject. 80.3% (55.7% and 24.6%) students accepted that due to encouraging behavior their interest increases, 9.4% students were neutral and 10.4% (3.7% and 6.7%) said their interest has not increased. The mean of all respondents is 1.81 with standard deviation of 1.168 attitude of students is positive. Significance value (P) 0.02 is less than alpha value 0.05. It is inferred that attitude Mean values of girls and boys have significant difference. Girls have more positive attitude as compared to boys as mean for girls is 1.67 which is less than boys 1.97. It is conformed that motivational behavior of teacher have made attitude of students positive just like research conducted previously. As reported by Rogers (2010) motivation can mold the attitude in a positive direction. It is similar to the finding of present study that students have also reported that they like chemistry because their teachers are encouraging while teaching. Encouraging behavior acts as a source of motivation for students.

Table 1.2: Students distribution on the statement that they think that Chemistry is important in everyday life

Categories	Frequency	Percent	Mean	Std. Deviation	t-value	P
Strongly Agree	251	61.8				
Agree	122	30.0				
Neutral	21	5.2	1.50	0.78	3.9	0.0
Disagree	7	1.7				
Strongly Disagree	5	1.2				
Total	406	100.0				

It is clear from table 1.2 that 61.8% students are strongly agreed to the statement that Chemistry is important in everyday life; another 30% of students are agreed to the statement. 21% students responded that they are neutral about it. A total of 2.9% (Disagree 1.7 and Strongly Disagree 1.2) denied the statement. It is clear that majority of students have positive attitude with regard to the fact that Chemistry is important in everyday life. Significance value (P) 0.0 is less than alpha value 0.05. It is inferred that attitude Mean values of girls and boys have significant difference. So, girls have more positive attitude as compared to boys. Childs *et al.*, (2015) reported that it is usual that chemistry education in schools have no relevance with the real life. This results in student's perception about chemistry that studying chemistry is not important. Here in this study we found that student think that Chemistry is important in everyday life.

Table 1.3: Respondent's distribution showing responses about videos and games can increase the learning of Chemistry

Categories	Frequency	Percent	Mean	Std. Deviation	t-value	P
Strongly Agree	87	21.4				
Agree	87	21.4				
Neutral	117	28.8	2.80	1.34	0.93	0.35
Disagree	51	12.6				
Strongly Disagree	64	15.8				
Total	406	100.0				

The results presented in table 1.3 show that 42.8% (21.4 and 21.4) student think that videos and games may be instrumental in increasing the performance of students in Chemistry, 28.4% (12.6 and 15.8) said that use of technology cannot increase the performance in the subject. The mean of all responses was 2.8 with standard deviation 1.33 shows that students do not have a positive attitude overall. Mean value is less than 2.8 is less than 3.00 hence we can not say it a negative attitude. Kousa *et al.* (2018) investigated the attitude among low achieving learners and most effective teaching strategies. He found that student though low achieving had positive attitude due to special attention given to them by the tutors. Internet, video games, museum visits and small group discussion alleviated their morals.

Table 1.4: T-test results for positive attitude of boys and girl students

Groups	Mean	Std. Deviation	t-value	Sig. (2 tailed)
Boys	2.06	0.29	1.481	0.15
Girls	1.93	0.38		

Independent samples t-test for the comparison of means was conducted to compare means of responses of boys and girls. The results of t-test are presented in table 1.4. The significance value 0.145 is greater than alpha value (0.05) we accept the null hypothesis. It is inferred that there is no significant difference between attitude of boys and girl students and it is also inferred that the difference in mean is by chance alone. It is found that attitude of girl students is similar to the boys. These finding are contrary to the studies conducted by Francis and Greer in Ireland and Cheung in Hong Kong. (Cheung, 2009). They found that attitude of boys is more positive than girl students.

4. CONCLUSION

It is found that boys and girls of secondary school students of District Toba Tek Singh have a positive attitude in most aspects of their syllabus, classroom, teachers and their learning. Students' attitude in chemistry determines their success in a particular field of endeavor. Favorable attitude result to good achievement, students' interest in the study of chemistry subject should be developed by both boys and girls and their interest or attitude should increase perhaps through encouragement from both parents and teachers.

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