

Investigating the Impact of Field Trips on Secondary School Students' Attitude to Learning of Sciences

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Abstract

The main objective of the paper was to determine the impact of the study tour on students' attitudes at secondary level. It was experimental research study. The population for this research was comprised of 130 science students of 10th class chosen randomly from private institute of Okara district located in division Sahiwal of Punjab province. Attitude to Science Questionnaire (ASQ) containing content from physics was used as research instrument. The validity of research instrument for this study was improved through experts' recommendations and the reliability were found to be 0.81. It was very clear from the findings that experimental group had positive attitude towards science as compared to other groups. It was also found that field trips promote science attitude and develop positive interest of the students in science. The school administration may manage field trips for the promotion of scientific attitude in the students.

Key Words

Impact, Science Attitude, Physics, Field Trips, Experimental Group.

Introduction

The study tour especially field trips gives vital importance in the area of science. A field trip may be called instructional trips, and school excursions (Behrendt & Franklin, 2014). During the period of school education, students are interacted with displays and settings to gain new ideas and concepts about anything. Moreover, field trips are designed very often for the purposes of education which have been experienced by students outside the classroom (Tal & Morag, 2009). It is also very clear from different studies that the field trips are arranged for some objectives like: to provide personal experiences to the students, to promote interest and motivational factors regarding the subjects of science, to create interrelationships, to provide strong presentation and observation skills among students studying subjects of science, and to enhance social interactions (Behrendt & Franklin, 2014). In educational trips, students are taken to unique locations. Each student can learn through personal experiences. The connections are created between the theory and learning through experiences with previous first-hand experiences as well as learning from the institution (Lei, 2010).

Another important thing in field trip organization is that it helps to fill the gap between education and hands-on- experiences (Behrendt & Franklin 2013; Rennie, 2007). It has many types like field trips informal shape (which have been organized in good manner), or informal field trips. The field trips which are shaped informally have not been structured in a good manner and that offer control activities to learn things in real environment (which belong to family activities). Science students through field tours fasten their learning skills to inspect and perceive theories in science by using five senses. Learners developed a positive attitude towards learning, motivating in doing practical works, and they can connect the educational concepts of learning at classroom level with the experience of field trips (Hudak, 2003). Field trips developed interest, curiosity, and motivation among pupils regarding the questions as well as answers, and discuss their experiences in group. When science students go on a trip, the location of field trips not only affects the students' learning but also enables them to gain knowledge about their environment, and communities through traveling from the school to the field trip (Behrendt & Franklin, 2013).

According to Myers & Jones (2009), field trips for studying science is a major component of the educational programming for both young and adults. Academic trips can be an integral part of teaching and learning process. Education field trips provide access to the students by experiencing

the connection between concepts being studied in the class and actual world situation. It is more natural and memorable technique that enables students to participate with mutual understandings outside the classroom. Educational field trips are designed with specific learning objectives as other program components.

A field trip generally designed for a purpose and makes a connection between focus and concept of field and the individuals are learned in remaining programs in the field of education especially science education. There are three basic steps in planning and managing a fruitful trip such as pre-trip included administration or instruction (topic content & vicarious exposure), trip (role of participants & role organizer), and post-trip (debriefing activity & culminating activity) (Myers & Jones, 2009).

According to Knutson & CAISE (2016), field trips in education are important in learning for sharing social experiences with others and provide the basis for science students to sum up and highlight novelty in things and it provides a foundation to identify the learning experience from study tour related to science. Among the many potential outcomes, the trips have been provided many opportunities to students for doing new experiences which can enhance interest and association in science and its results must be affective and science students are satisfied with more positive and pleasant feelings towards science learning.

Students got a chance to explore their skills and personality in meaningful way through these kinds of schools' trips. The process of learning through field trips is affected by many parameters like the structure of the trip, content knowledge, and interests of the science learners during the journey, the social dimensions of the visit, and students' sharing learning experiences during the field trips (Knutson & CAISE, 2016). According to Gormez (2014), Socio-cultural theory has described that successful learning occurs in social environments. In the theory regarding socio-culture, the Zone of Proximal Development (ZPD) considered most important to understand concepts. The engagement of students through real-life experiences, physical objects, and other people with learning enables them to understand clearly (Vygotsky, 1987).

According to Frost (2007), students had been interactive with each other during trips and they share their knowledge. Students learn more when they view all those elements with their five senses rather than what they are explained in the conventional process of education. They can realize that printed text is also real in the world. Educational field trips facilitate students as entertainment, motivator, and opportunities to discover new things and thoughts.

Students can learn better in fun and activity-based teaching. Field trips serve the students to learn with the combination of fun and enjoyment and with realization what they already know through their books. Field trips explore for the students that they can evaluate the learning and its implementations in real-life situations. Educational field trips also encourage students to learn in a team, collaboration, and in community as students experience trips in the form of groups. Students explore new venues and an environment for learning. This method takes a great deal to work with energy and expose the new horizons that students value in relation to science (Frost, 2007). Science subject involves with creative learning process to solve problems, make connection among concepts, conduct experiments, draw hypothesis, make conclusion, paramount of extending present knowledge of science (Stephens, 2009). The present study was designed to investigate the impact of field trips on students' attitudes towards science.

Research Objectives

The following research objectives that adequately explored through the present study:

1. To explore the attitude of students to science before and after field trips.
2. To examine the effect of field trips on secondary school students' attitudes.

Research Question

1. What is the attitude of students to science before and after the field trips have taken?
2. What is the effect of field trips on secondary school students' attitudes?

Research Methodology

The present study was designed to conduct pre and post-tests in the control group design of experiment. The researcher developed two groups for instruction in this study. The researcher followed the methodology of Patrick (2010). Group A was field trip group and group B was formal classroom students who did not attend any field trip. Repeated testing was applied to group A. The main variable which was independent in this study was field trip that effects the exposure of students towards science subject.

The total population of the test consisted of 130 male and female science students from a private school in Okara city from 10th grade. A sample of 65 boys and girls learning science subjects were selected on random basis

(group A). Two field trips were formed for group A while, group B was attributed without field visit and learning in the classroom with traditional approach of teaching served as control group. Both groups were taught by two experienced teachers in the field of science. Both teachers were qualified and taught same subject to the students.

Detail of Research Instrument

Two types of materials were used in this study i.e. material regarding the instructions as well as material regarding the tests. The instructional material comprised of four weeks. The content was selected from physics and the same topic was used for both groups. The test contents included the Attitude to Science Questionnaire (ASQ) adopted from Olasehinde and Olatoye (2014). It has statements made on a five-point Likert scale which started from strongly agree and ended at strongly disagree phenomena. The reliability value of α original scale was 0.73

The face and content validity of the questionnaire was ensured through experts' opinions. Some modifications and enhancements were made to experts recommendation that questionnaire is measured what it is supposed to measure. The final version of questionnaire was tested on 25 students and this sample was discarded from real sample of this study. The data which had been collected from 25 students showed that students were comfortable to fill the questionnaire. The questionnaire was reliable through Cronbach alpha value of 0.81.

Organization of Field Trips

The following measures were taken to plan the field trips for the students:

- Teachers were briefly explained about the objective of field trips.
- The basic aim of field trips was explained to the students in accordance with the content of the subject.
- The researcher also visited the trips with the students to obtain material for this study.
- The permission for the field trips was also obtained from the authorities.
- Researcher himself managed the transportation, budgeting, and schedule for field trips.
- The researcher explained the safety and behavioral acts appropriate to the conditions of the trip to the participants.

The group A and B were identified from the teachers after taking the class exercises. The observations were taken from both classes and the impact of the field trips on students' attitudes was investigated.

Findings

The findings of pre and post-treatment were presented and interpreted. The researcher applied *t*-test to determine the mean score differences between students of group A and students of group B.

Table 1. Pre-Test and Post-Test Analysis of Scores of Group A Regarding Field Trips and Its Impact on Their Attitude

	N	Mean	SD	<i>t</i>	<i>p</i>
Pre-test	65	32.52	1.92		
Post-test	65	59.21	2.55	9.33	0.3
Difference		-26.69			

$p < .5$

Table 1 showed that there is a significant mean difference between the scores of group A before and after field trips. The pre-test and post-test scores of students indicate that there are significant changes in their attitude. The mean value of students' score before the field trip is lower (M 32.52, SD = 1.92) than that of their scores after field trips (M = 59.21, SD = 2.55). The mean difference between pre-test and post-test scores is -26.69. It was noted that field trips have positive and significant impact on the students of science.

Table 2. Comparison of Scores of Group A (Field Trip Group) and Group B (Formal Class Group) About Their Attitude towards Science

	N	Mean	SD	<i>t</i>	<i>P</i>
Group A	65	76.91	7.72		
Group B	65	22.11	3.05	18.331	0.2
Difference		54.8			

$p < .5$

Table 2 demonstrates that the mean score of group A is much more than that of the scores of group B. The mean value of group A is 76.91 with a standard deviation of 7.72. The mean value of group B is 22.11 with standard deviation of 3.05. The results of table 2 indicate that the group has positive significant attitude towards science after field trips in comparison to group B who did not attend any field trip. The mean difference between both groups was found to be 54.8.

Discussions

The aim of the present study was to examine the impact of field trips on secondary school students' attitudes towards science. The current study is significant to explore the usefulness of field trips in the learning of science subjects. Furthermore, it highlighted the cognitive and psychomotor outcomes of students within field trips. The findings of present study demonstrate that there is significant positive impact of field tour on students' attitudes towards science at secondary level.

The evidence of qualitative and quantitative data reveal that field trips enhance the students' attitude regarding interest in science subject. It is discovered from present findings that multiple academic trips develop students' participation more to connect the scientific concepts in curriculum in the real-world situation. The students of group (A) who had attended the field trips were mirrored in comparison to the traditional group (B). The students of group A (field trip group) showed more positive attitude towards science than of group B (formal class). Moreover, it was noted during the field trips that positive attitude of students appeared during and after field trips in comparison to those students who do not visit field trips. The significant findings of this study associated with the studies of Ausubel (1968), Ajaja (1998), Patrick (2010), Brunner (1965), Gormez (2014), Knutson (2016), Myer (2018), and Rennie (2007). These studies simply explore the field trips and learning outside the school boundary last positive effect on students' learning and attitude as well.

The findings of this study also show that students explored their experiences on field trips and show positive significant attitude better in the specified content from physics subjects. Above mentioned studies determined that the students of science subjects maintain their observation in practical world and determined the principles of observation in science.

The most significant use of science-related field trips was that provide meaningful environment in realistic means. Moreover, field trips employed students with opportunities to learn through all senses. The study revealed that field trips made concepts, principles, and topics more retention better. The comparison indicated that students exposed field trips as learning experiences and performed better than those who received traditional classroom environment. In collective, the field trips greatly influenced the attitude of students to understand the science concepts better than regular learning. The present findings demonstrated that field trips not only positively affect attitude of students towards science but also increase the understanding level of students to their subject.

Conclusions

Field trips are different from the traditional teaching-learning process in which teachers are active and students remain passive. It is determined in this study that academic field trips changed the attitude of students positively towards science. It is beneficial that students (group A) learned before, during, and after field trips. The students in group A (who have field trips) explored more opportunities for learning than that of students in group B (who received conventional methods of teaching in the class).

The conclusion of the present study portrayed that students who enjoyed field trips put a positive attitude towards science as compared to other students who did not experience field trips. Both quantitative and qualitative data indicated that field tours increased students' science attitude and these things made interest in science significantly. The exposure of experimental constraints revealed that field trips enhance the attitude of secondary students towards science in physics particularly. Therefore, it is concluded that field trips have positive and significant impact on the attitude of students towards learning in science at secondary level.

The findings of the current study suggest that field trips generally positively influence the attitude of students across science subjects. A statistically significant difference was noted between the students who experienced field trips and those who received traditional method of learning science in the classroom. The major reason for being positive enhances understandings of science through field trips, therefore, they developed cognitive, behavioral, and affective domains of learning when students move from the classroom boundaries to the outdoor and field environment.

Recommendations

The present study recommended that plenty of field trips should be organized for the students of science at secondary level. The teachers and school authority's curriculum planners should provide such positive activities to enhance such activities to contribute into attitude of students towards science.

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