

EFFECTIVENESS OF FIELD TRIP ON TEACHING BOTANY AT HIGHER SECONDARY LEVEL

Research
Paper

ABSTRACT

The field trip should be based on direct experience, concentrating on those activities that cannot be conducted in the classroom or laboratory. This approach involves assignments that direct the students towards activities such as observing, touching, identifying, measuring, and comparing. The field trip should be used as integration with particular aspects because it concentrates on activities in the field and provides a basis for meaningful learning in broader contexts. The present study is carried out in order to assess the effectiveness of field trips over conventional lectures for teaching Botany at the Higher Secondary School level. The investigator adopted parallel group design for the present study. The study revealed that Field trip is an effective tool for teaching the topics in Botany.

INTRODUCTION

The instructional strategy, field trip should be based on first hand experience, concentrating on those activities that cannot be conducted in the classroom or laboratory. A process-oriented approach should be used to achieve the objectives of this method. This approach involves assignments that direct the students towards activities such as, observing, touching, identifying, measuring, and comparing. Follow-up activities of interpretation and drawing conclusions should be based on basic processes. The more familiar are with their assignment (cognitive preparation), with the area of the field trip (geographical preparation), and the kind of event in which they will participate (psychological preparation). The field trip should be used as integration with particular aspects because it concentrates on activities in the field and provides a basis for meaningful learning in broader contexts.

To assess the effectiveness of the field trip experience, Orien and Hofstein (1994) used evaluative mechanisms in their study. During the field trip, direct observations were made, students were interviewed, and students' attitudes towards the field trip were collected with a questionnaire. Post-field trip surveys and interviews were conducted to determine the students' attitudes towards field trips and an achievement test was also given. When testing the usefulness of field trips guidebooks, outlines, instructional materials, and associated techniques were used. Evans (1958) found that classes that used planned field trip techniques learned more, retained more,

and did better on tests than did classes not participating in field trips.

NEED AND SIGNIFICANCE

Teaching through field trips provides opportunities for all learners for getting direct experience about nature and natural processes. In the case of Botany, learning through field trips will be more meaningful and effective for getting concrete experience about Botanical principles and concepts. So the investigator selected this topic for the present study.

OBJECTIVES

1. To test the effectiveness of the Field Trip method in comparison with the Lecture method.
2. To find out retention of students in Botany with respect to the Field Trip method
3. To test the effectiveness of the Field Trip Method with regard to the variables such as (i) Sex (ii) Locality (iii) Income (iv) Community
4. To study the effectiveness of the Field Trip method with respect to the Instructional Objectives such as (i) Knowledge (ii) Understanding (iii) Application (iv) Skill.

T. Praveen Dhar

Principal,

R.P.A. College of Education, Marthandam,
Viricode P.O., Kanyakumari.

HYPOTHESES

1. There will be significant difference between the pre-test scores of the experimental and the control groups.
2. There will be significant difference between the pre- and post- test achievements of the experimental group.
3. There will be significant difference between the pre- and post- test achievements of the control group.
4. There will be significant difference in the post test scores of the experimental and control groups.
5. There will be significant difference between the means of post- and retention test scores of the experimental group.
6. There will be significant difference between the post-test scores of the experimental group with regard to the variables such as (i) Sex (ii) Locality (iii) Income (iv) Community.
7. There will be significant difference between the post-test scores of the experimental and the control groups with respect to the instructional objectives such as (i) Knowledge (ii) Understanding (iii) Application (iv) Skill.

METHODOLOGY

Method and Design

The experimental method was adopted for the present study, in which pre-test, post-test parallel group research design was used. One retention test was also given after one month of the experiment to understand the retention of content by the students. For that the investigator used the same achievement test.

Tools

The following tools were used for present study :

1. Planned Field Trip Schedule for the topic : Ecosystem
2. Kerala University Group Test of Intelligence
3. Personal Information Sheet

4. Achievement test in Botany used as pre-, post- and retention tests in order to measure entry and terminal behaviours and retention of topic among students.

Sample

The sample selected for the study consists of 62 students of class XII from Government Boys' Higher Secondary School, Neyyattinkara, Thiruvananthapuram Dist (Kerala). The age of the students ranged from 16-18 years. The sixty two students were classified into two groups one as Control and other as Experimental containing 31 each, equated by their intelligence by using Kerala University Group Intelligence Test.

Procedure of study

For the present study, the investigator adopted the parallel group design experimental method. For the experimental group, the investigator planned and conducted a Field Trip to Kerala Government Museum, Thiruvananthapuram for teaching the topic: Ecosystem, Components and Types. The control group was taught by the lecture method. The investigator conducted an achievement test in Botany for measuring the pre- and post- achievements of the students in Botany.

ANALYSIS

Statistical computations were done in order to compare the pre- and post -achievements of the Experimental and Control groups. t-test was used for the above purpose.

HYPOTHESIS : 1

There will be significant difference in the pre-test scores of the experimental and the control groups.

Table 1

**SIGNIFICANT DIFFERENCE BETWEEN
PRE-TEST SCORES OF THE EXPERIMENTAL
AND THE CONTROL GROUPS**

Group	N	M	S.D		t
Control	31	2.49	0.912		0.54
Experimental	31	2.36	1.04		

The above table shows that the computed 't' value is 0.54 which is not significant at both levels. It indicates that there is no significant difference between the experimental and the control groups in the present scores. So Hypothesis -1 is rejected.

HYPOTHESIS : 2

There will be significant difference between the pre- and post- test achievements of the experimental group.

Table 2

SIGNIFICANT DIFFERENCE BETWEEN THE PRE- AND POST- TEST ACHIEVEMENTS OF THE EXPERIMENTAL GROUP

Test	N	Mean	S.D	t	Level of significance
Pre-test	31	2.49	0.912	38.4	0.01
Post-test	31	40.88	3.742		

The table shows that the obtained 't' value is 38.4, which is found significant at both levels. It indicates that there is significant difference between the pre- and post-test achievements of the experimental group. So hypothesis -2 is accepted.

HYPOTHESIS : 3

There will be significant difference between the pre- and post- test achievements of the control group.

Table 3

SIGNIFICANT DIFFERENCE BETWEEN THE PRE- AND POST- TEST ACHIEVEMENTS OF THE CONTROL GROUP

Test	N	M	S.D	t	Level of significance
Pre-test	31	2.36	1.04	21.1	0.01
Post-test	31	30.89	7.39		

The table shows that the obtained 't' value is 21.12, which is found significant at both levels. It indicates that there is significant difference between the pre- and post-test achievements of the control group. So hypothesis 3 is accepted.

HYPOTHESIS : 4

There will be significant difference in the post-test scores of the experimental and control groups.

Table 4
SIGNIFICANT DIFFERENCE IN THE POST-TEST SCORES OF THE EXPERIMENTAL AND THE CONTROL GROUPS

Test	N	M	S.D	t	Level of Significance
Post-test	31	40.88	3.742	4.31	0.01
Retention test	31	35.3	6.21		

The above table shows that the computed 't' value is 6.77 which is significant at both levels. It indicates that there is significant difference between the experimental and the control groups with regard to post-test achievement scores. So hypothesis 4 is accepted.

HYPOTHESIS : 5

There will be significant difference between the means of post- and retention test scores of the experimental group.

Table 5

SIGNIFICANT DIFFERENCE BETWEEN THE MEANS OF POST- AND RETENTION TEST SCORES OF THE EXPERIMENTAL GROUP

Test	N	M	S.D	t	Level of Significance
Post-test	31	40.88	3.742	4.31	0.01
Retention test	31	35.3	6.21		

The 't' value obtained is 4.31, which is significant at both levels. It indicates that there is significant difference between the post-test and retention test scores of the experimental group. So hypothesis 5 is accepted.

HYPOTHESIS: 6

There will be significant difference between the post-test scores of the experimental group with regard to the following variables such as (i) sex (ii) locality (iii) income and (iv) community.

Table 6
SIGNIFICANT DIFFERENCE IN THE POST-TEST SCORES OF THE EXPERIMENTAL GROUP WITH REGARD TO THE VARIABLES SUCH AS (I) SEX (II) LOCALITY (III) INCOME AND (IV) COMMUNITY

Sl.No.	Variables	Category	N	M	S.D.	t
1	Sex	Male	15	42.29	3.09	1.33
		Female	16	40.75	3.37	
2	Locality	Rural	17	41.1	4.11	0.99
		Urban	14	40.41	2.76	
3	Income	High	15	41.56	4.09	1.63
		Low	15	39.64	2.6	
4	Community	Forward	13	40.13	4.01	0.17
		Backward	18	40.09	3.01	

It is evident from the table that the 't' value obtained for the variables sex, locality, income and community is not significant at both levels. So it can be concluded that post-test achievement was not influenced by the variables sex, locality, income and community. So hypothesis-6 is rejected.

HYPOTHESIS : 7

There will be significant difference between the post-test scores of experimental and control groups with respect to the following instructional objectives such as (i) knowledge (ii) understanding (iii) application and (iv) skill.

Table 7
SIGNIFICANT DIFFERENCE BETWEEN THE POST-TEST SCORES OF THE EXPERIMENTAL AND THE CONTROL GROUPS WITH RESPECT TO THE INSTRUCTIONAL OBJECTIVES SUCH AS (I) KNOWLEDGE (II) UNDERSTANDING (III) APPLICATION AND (IV) SKILL

SLN o.	Instructional Objectives	N	M	S.D	t	Level of Significance
1	Knowledge	31	12.23	2.13	7.4	0.01
		31	10.01	2.28		
2	Understanding	31	14.56	3.14	6.31	0.01
		31	9.45	3.24		
3	Application	31	10.98	2.15	2.7	0.01
		31	7.18	2.27		
4	Skill	31	8.14	2.54	6.71	0.01
		31	4.11	2.29		

The result shows a significant t-value for all the instructional objectives. Hence hypothesis 7 is accepted. It indicates that field trip is a very effective tool for teaching Botany at Higher Secondary School classes.

FINDINGS

The following truths emerged from the present study.

1. Comparison of the mean scores of the experimental and control groups on pre- test achievement revealed that there is no significant difference.
2. Mean scores of the experimental and the control groups on post-test achievement revealed that there is significant difference.
3. Post- and Retention test scores of the experimental group revealed that there is significant difference in the retention of content in Botany.
4. Mean post-test scores of the experimental and the control groups with regard to different instructional objectives revealed that there is a significant difference.
5. Mean scores of the experimental group on post-test achievement revealed that there is no significant difference for the variables such as Sex, Locality, Income and Community.

DISCUSSION

Atyeo (1939) conducted a study in which he compared the results obtained from the use of an excursion technique with those of other teaching methods. He found that with an increase in excursions there was an increase in investigating the phenomena associated with the experience, and demonstrated that the excursion technique was superior to class discussion.

A STUDY OF THE PROBLEMS...

Testing the effectiveness of field trips in the teaching of college level Botany classes, Kuhnen (1959) found that groups actively involved in field trips showed some, but limited, superiority in knowledge gain over control groups instructed in a laboratory. John (2000) studied the effectiveness of the Guided Field Study method for teaching Ecology at higher secondary level. The study revealed that the Field Trip method is superior to the Lecture method in terms of (i) immediate achievements (ii) developing cognitive, affective and psychomotor aspects and (iii) acquiring knowledge through first hand experience

REFERENCE

1. Atyeo, H. *The Excursion as a Teaching Technique*. New York: Columbia University Press, 1939.
2. Evans, H.G. *An Experiment in the Development and Use of Educational Field Trips*. Unpublished doctoral dissertation, The University of Tennessee, 1958.
3. John Resmi. *Effectiveness of the Guided Field Study model for teaching Ecology at the Higher Secondary level*. Unpublished M.Ed. thesis, University of Kerala, 2000.
4. Kuhnen, S.M. *The Effectiveness of Field Trips in the Teaching of General Botany*. Unpublished doctoral dissertation, New York University, 1959.
5. Orien, N. and Hofstein, A. *Factors that Influence Learning during a Scientific Field Trip in a Natural Environment*, *Journal of Research in Science Teaching* V. 31, pp.1097-1119. 1994.

There is no real excellence in all this world which
can be separated from right living

– David Starr Jordan

We are what we repeatedly do.

Excellence, then, is not an act, but a habit.

– Aristotle

I know of no more encouraging fact than the
unquestionable ability of man to elevate his life by
conscious endeavour.

– Henry David Thoreau

3. There is a significant difference between the higher secondary students from nuclear families and those from joint families in respect of their problems. Moreover the higher secondary students from nuclear families (Mean = 40.23) are having a high level of problems than the students from joint families (Mean = 46.37). The 't' value is 3.53.

CONCLUSION

The majority of the higher secondary students are having a low level of problems, because the students understand the present issues in the society. There is significant difference between the higher secondary students in the schools located in urban areas and those in the schools located in rural areas in respect of their problems. This is because the mental strength differs in respect of the sex and also in the mode of stay. Moreover, there is a significant difference between the higher secondary students studying in Tamil medium and those in the English medium and also between the higher secondary students from nuclear families and those from joint families in respect of their problems.

REFERENCE

1. Best, John W. (1977) *Research in Education*. Englewood Cliffs : Prentice Hall Inc.
2. Garrett H E. (1979) *Statistics in Psychology and Education*. Hyderabad :International Book Bureau 1979.
3. Jeyakumar, (2008). *A study on the problems of higher secondary students in Virudhunagar district* Unpublished M.Phil., dissertation, Annamalai University, Tamilnadu, India.
4. Natrajan. V. (2000) *Problems of the SC and ST students*. Unpublished Ph.D., dissertation work, Annamalai university, Annamalainagar, Tamilnadu, India.

Owned & Published by Rev. Dr. S. Sebastian, S.J.
from St. Xavier's College of Education, Palayamkottai,
Tirunelveli -2. Printed by G. Kanagasabapathi at
Muthulethumi Press, 123-G, Trivandrum Road,
Palayamkottai - 627 002.

Editor : Rev. Dr. S. Sebastian, S.J.