

EFFECTIVENESS OF WEB BASED INSTRUCTION IN TEACHING ZOOLOGY TO COLLEGE STUDENTS

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The present study is an attempt to study the Effectiveness of Web Based Instruction in Teaching Zoology to College students. The present study aims to explore the effectiveness of Web Based Instruction on the academic achievement of college students in Zoology and to find out the difference in academic achievement of urban and rural college students exposed to Web Based Instruction in Zoology. The study was conducted by using experimental method. The sample of the study consisted of forty female students of B. Sc.-I year from Zoology group by using purposive sampling technique. One group pre-test post-test experimental design was applied in the study. After conducted pre-test, the selected sample of students exposed to Web Based Instruction for twenty days. After the completion of the twenty two days of teaching, post-test was administered on the students. In order to analyze the effectiveness of Web Based Instruction on the academic achievement of college students in Zoology, t-test was applied. Results reveal that 1) Web Based Instruction proves to be effective in enhancing the academic achievement of college students in Zoology; 2) academic achievement in Zoology among urban as well as rural college students boosted through Web Based Instruction; and 3) both urban and rural college students exposed to Web-Based Instruction in Zoology have the same level of achievement.

Keywords: Web Based Instruction and Zoology.

INTRODUCTION

In modern era, Web Based Instructions (WBI) have plays an importance role in making teaching-learning process more effective and long lasting impression in the mind of the learner. Technological innovations inspire the teachers to play an important role in developing good content matter and use graded pedagogy for imparting instructions to students in teaching-learning environment so that needs of the students addressed properly.

Current study revolves around the effectiveness of Web Based teaching in Zoology. Zoology is one of the subjects that want more innovation. In this subject, most of the things are related with science and practical work, if teachers use WBI for explanatory purpose, it can increase the impact. It seems like that it might have only positive effect, but it should be kept in mind that , if one is not expert in using the devices the entire show can convert in flop show. That is why, it is quite important to see all buts and ifs of use of information and communication technology in the field of education particularly in Zoology. Teaching learning process is bilateral process. On the one side there are pupil (learner) and teacher on another end. With growing professionalism the level of expedition of parent and children has inflated. Only lecturing in the class is no more a good method of teaching.

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In most of the colleges as well as universities, ineffective methods have been used to teach science courses i.e. teacher centered and learner centered. To improve effectiveness of Zoology course, advanced as well as learner centered methods should be chosen by using new technological techniques. So, by replacing some teacher centered with some innovative and modern methods i.e. WBI. WBI may be more effective in making the learner active participant in lessons. The use of animation must help the learners to grasp difficult process in simple and effective manner.

In most of the courses till now, basic recall is the main focus of examination, whereas, in the modern courses, the learners are evaluated on their actual performance in their theory and practical work that makes effectiveness of Zoology in Colleges.

Now a day, the core courses can be taught by using audio and compact discs that brings coordination between lecture and laboratory components. In colleges, lab must be operational six days a week, so that the students can attend as per their convenience. Active learning which integrates experimental work plays an important role in helping Zoology student in colleges.

Modern technology and low cost have made electronic gadgets easily manageable for almost every classroom use in most of the college buildings. Consequently, faculties are motivated to teach their subject matter with the help of animated and related videos of content in the classroom and improve their style of teaching as well as making teaching more interesting and effective.

Teachers normally use power point presentations and overheads projectors. The use of animated and real videos related to content helps in increasing learners' knowledge or retention and makes teaching Zoology more effective. By the use of all advance techniques, it helps to achieve more attention of the students about the subject matter of Zoology as Zoology is a practical based subject that needs experimental study along the descriptive one.

From the review of the literature it has been observed that WBI is a new and growing trend in the educational field. It has been observed from the literature that the success of WBI depends upon its utility and usability in the development process of education. The structure for a WBI course has not been considered as the structure of a traditional lecture course (Peraya, 1994); and the transfer of present course content to WBI, without considering and using the technical issues (Parson, 1997). Since the authoring systems are likely to offer simple and striking to client interfaces, therefore, lack of awareness in interface design included in utility issues in the design of WBI (Squires and Preece, 1996); there is a need to use the Web capabilities for improving the environment of classroom and distance education practices (Welsh, 1997); instead of using traditional software applications, it is suggested to use application of Web characteristics for making educational process more meaningful and effective (Pernici and Casati, 1997). WBI displays huge differences in the students' needs, expectations and interests with the classical instruction

(Glenn, 2001). Therefore, poor outcomes may be generated if solutions applicable to the usual instruction also applied to various challenges in WBI. It has been observed that the Zoological profession exposed to numerous new developments during the past few decades. The various situations where e-learning includes various forms of automatically supported teaching-learning process, Zoological education has to respond to new challenges. The technology based systems work as exact media to execute the teaching-learning process (Tavangarian et al, 2004). Therefore, it is significant to assess the effectiveness of WBI on the educational achievement of college students in Zoology. Keeping this in view the present study was conducted to fulfill the subsequent objectives:

OBJECTIVES

Following objectives were framed in the present study:

1. To study the effectiveness of WBI on the academic achievement of college students in Zoology.
2. To find the difference in academic achievement of urban and rural college students exposed to WBI in Zoology.

HYPOTHESES

Following hypotheses were formulated to achieve the objectives of the present study:

1. WBI enhances academic achievement of college students in Zoology.
 - a. WBI enhances academic achievement of urban college students in Zoology.
 - b. WBI enhances academic achievement of rural college students in Zoology.
2. There exists no significant difference in academic achievement of urban and rural college students exposed to WBI in Zoology.

DESIGN OF THE STUDY

Experimental method was used to conduct the present study. Data collection was made from students studying in degree college of Batala, Gurdaspur district of Punjab, belonging to science (medical) stream by using purposive sampling technique. The sample comprised of forty female students of B. Sc.-I year. Self prepared achievement test and Web Based learning material in Zoology were used to collect the data. One experimental group of forty female students of B. Sc.-I year was formed. One group pre-test post-test experimental design was used in the present study. Pre-test was administered for assessing the academic achievement of students in Zoology before exposing the students to WBI with the help of self prepared achievement test in Zoology. The experimental group was taught selected topics of Zoology with the help of WBI. After the completion of twenty two days of WBI, academic achievement of college students in Zoology was assessed with

the help of post-test (self prepared achievement test in Zoology). For analyzing the effectiveness of WBI on academic performance of college students in Zoology, t-test was employed.

RESULTS AND DISCUSSION

Analysis of data, result and interpretation of findings has been done keeping in view the objectives and hypotheses of the study.

Result pertaining to Effectiveness of WBI on Academic Achievement of College Students in Zoology

To test the academic achievement of the college students exposed to WBI, a pre and a post-test in Zoology was administered to college students. After administering a pre and a post-test in Zoology pertaining to academic achievement, Mean, SD, SED and critical ratio were computed and results have been presented in the table 1.

TABLE 1: SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS OF ACADEMIC ACHIEVEMENT OF PRE AND POST-TEST SCORES OF COLLEGE STUDENTS IN ZOOLOGY

<i>Group</i>	<i>Count</i>	<i>Mean</i>	<i>SD</i>	<i>SED</i>	<i>t'-value</i>	<i>Remark</i>
FCS (PrTS)	40	22.10	5.49	0.86	6.00	P < 0.01
FCS (PoTS)	40	27.25	5.06			

*FCS-Female College Students; PrTS-Pre-Test Scores and PoST-Post-Test Scores

Interpretation

Table 1 reveals that the mean score of pre-test i.e. achievement scores of students in Zoology before exposing to WBI in Zoology is 22.10 and that of post-test i.e. achievement scores of students in Zoology after exposing to WBI in Zoology is 27.25. The standard deviation (SD) of pre and that of post-test is 5.49 and 5.06 respectively. It means that the college students have high academic achievement in Zoology after exposing to WBI. The calculated t'-value of the data came out to be 6.00, which is significant (0.01 level of significance). So, it may be concluded that the difference between academic achievement of pre and post-test scores of college students in Zoology is significant. It has been observe that the mean score of pre-test is less than the mean scores of post-test which clearly indicates that WBI is effective method of teaching. It has been due to the reason that WBI makes the college students' active participants in the teaching-learning process by the maximum use of their senses and makes the lesson lively and real. So, it can be concluded that there is improvement in the academic achievement of college students in Zoology after exposing to Web-Based Instruction. Hence, the hypothesis stated that WBI improves academic achievement of college students in Zoology, is not rejected.

Result pertaining to Effectiveness of WBI on Academic Achievement of Urban College Students in Zoology

To test the academic achievement of the urban college students taught through WBI, a pre and a post-test in Zoology was administered. After administering a pre and a post-test in Zoology pertaining to academic achievement, Mean, SD, SED and critical ratio were computed and results have been presented in the table 2.

TABLE 2: SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS OF ACADEMIC ACHIEVEMENT OF PRE AND POST-TEST SCORES OF URBAN COLLEGE STUDENTS IN ZOOLOGY

<i>Group</i>	<i>Count</i>	<i>Mean</i>	<i>SD</i>	<i>SED</i>	<i>t'-value</i>	<i>Remark</i>
UFCS (PrTS)	10	23.60	7.03	2.68	4.03	P < 0.01
UFCS (PoTS)	10	29.00	8.06			

*PrTS-Pre-Test Scores; PoST-Post-Test Scores and UFCS-Urban Female College Students

Interpretation

Table 2 reveals that the mean score of pre-test i.e. achievement scores of students in Zoology before exposing to WBI in Zoology is 23.60 and that of post-test i.e. achievement scores of students in Zoology after exposing to WBI in Zoology is 29.00. The SD of pre and that of post-test is 7.03 and 8.06 respectively. It means that the urban college students have high academic achievement in Zoology after exposing to Web-Based Instruction. The calculated t' -value of the data came out to be 4.03, which is significant (0.01 levels of significance). So, it may be concluded that the difference between academic achievement of pre and post-test scores of urban college students in Zoology is significant. It has been observe that the mean score of pre-test is less than the mean scores of post-test which clearly indicates that WBI is effective method of teaching. It has been due to the reason that WBI makes the urban college students' active participants in the teaching-learning process by the maximum use of their senses and makes the lesson lively and real. So, it can be concluded that there is improvement in the academic achievement of urban college students in Zoology after exposing to WBI. Hence, the hypothesis stated that WBI enhances academic achievement of urban college students in Zoology, is not rejected.

Result pertaining to Effectiveness of WBI on Academic Achievement of Rural College Students in Zoology

To test the academic achievement of the rural college students taught through WBI, a pre and a post-test in Zoology was conducted. After administering a pre and post-test in Zoology pertaining to academic achievement, Mean, SD, SED and critical ratio were computed and results have been presented in the table 3.

TABLE 3: SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS OF ACADEMIC ACHIEVEMENT OF PRE AND POST-TEST SCORES OF RURAL COLLEGE STUDENTS IN ZOOLOGY

<i>Group</i>	<i>Count</i>	<i>Mean</i>	<i>SD</i>	<i>SED</i>	<i>t'-value</i>	<i>Remark</i>
RFCS (PrTS)	30	21.60	5.31	1.02	4.99	P < 0.01
RFCS (PoTS)	30	26.67	4.68			

*PrTS-Pre-Test Scores; PoST-Post-Test Scores and RFCS-Rural Female College Students

Interpretation

Table 3 reveals that the mean score of pre-test i.e. achievement scores of students in Zoology before exposing to WBI in Zoology is 21.60 and that of post-test i.e. achievement scores of students in Zoology after exposing to WBI in Zoology is 26.67. The SD of pre and that of post-test is 5.31 and 4.68 respectively. It means that the rural college students have high academic achievement in Zoology after they exposed to Web-Based Instruction. The calculated t' -value of the data came out to be 4.99, which is significant (0.01 levels of significance). So, it may be concluded that the difference between academic achievement of pre and post-test scores of rural college students in Zoology is significant. It has been observe that the mean score of post-test is more than the mean scores of pre-test which clearly indicates that WBI is effective method of teaching. It has been due to the reason that WBI makes the rural college students' active participants in the teaching-learning process by the maximum use of their senses and makes the lesson lively and real. So, it can be concluded that there is improvement in the academic achievement of rural college students in Zoology after exposing to WBI. Hence, the hypothesis stated that WBI enhances academic achievement of rural college students in Zoology, is not rejected.

Result pertaining to Difference in the Academic Achievement of Urban and Rural College Students Exposed to WBI in Zoology

To test the academic achievement of the urban and rural college students exposed to WBI, a post-test in Zoology was administered. After administering a post-test in Zoology pertaining to academic achievement, Mean, SD, SED and critical ratio were computed and results have been presented in the table 4.

TABLE 4: SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS OF ACADEMIC ACHIEVEMENT OF POST-TEST SCORES OF URBAN AND RURAL COLLEGE STUDENTS EXPOSED TO WBI IN ZOOLOGY

<i>Group</i>	<i>Count</i>	<i>Mean</i>	<i>SD</i>	<i>SED</i>	<i>t'-value</i>	<i>Remark</i>
UFCS (PoTS)	10	29.00	8.06	1.83	1.27	P > 0.05
RFCS (PoTS)	30	26.67	4.68			

* PoST-Post-Test Scores, UFCS-Urban Female College Students and RFCS-Rural Female College Students

Interpretation

Table 4 reveals that the mean score of rural college students in post-test of Zoology is 26.70 and that of urban college students in post-test in Zoology is 29.00. The SD of rural and urban college students is 4.68 and 5.98 respectively. It means that the urban college students have high academic achievement in Zoology than that of rural college students after they exposed to WBI. The calculated t' -value of the data came out to be 1.27, which is insignificant (0.01 levels of significance). So, it may be concluded that the difference between academic achievement of urban and rural college students in Zoology exposed to Web-Based Instruction is insignificant. It has been observe that the mean score of urban college students in post-test is more than that of rural college students which clearly indicates that WBI considered more effective method of teaching for urban college students as compare to rural college students. It has been due to the reason that urban college students have more exposure to technology as compared to rural college students. So, it can be concluded that the level of academic achievement of urban and rural college students in Zoology is same after exposing to WBI. Hence, the hypothesis stated that there exists no significant difference between academic achievement of urban and rural college students exposed to WBI in Zoology, is not rejected.

CONCLUSIONS

- WBI proves to be effective in enhancing the academic achievement of college students in Zoology.
- Academic Achievement in Zoology among rural as well as urban college students boosted through WBI.
- Urban and rural college students exposed to Web Based instruction in Zoology have the same level of academic achievement.

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