



A Study of Effectiveness of ICAI Programme on Student-Teachers Achievement in Educational Psychology

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Abstract:

In present study, the researcher constructed an Interactive Computer Assisted Instruction programme in Educational Psychology subject for Student-Teachers of B.Ed. colleges. The main objective of researcher was to study. To study effectiveness of ICAI programme on student-teachers in Educational Psychology subject in the context of teaching method. The researcher used pretest-posttest equivalent groups experimental research design. The researcher constructed pretest and posttest as data collection tools. 38 students were selected from this college. Out of these students 6 male students and 13 female students in each, experimental and controlled group. Experimental group was treated with ICAI programme and controlled group was treated with traditional teaching method. After this experimentation, a posttest of 40 marks was given to all selected student-teachers. After research, it was revealed that sum rank of student-teachers of Experimental group is more than sum rank of student-teachers of Controlled group. This showed that the effect of ICAI programme is positive on student-teachers.

Keywords: ICAI, experimental research, B.Ed. college, educational psychology, student-teachers

1. Introduction

Interactive Computer-Assisted Instruction (ICAI) refers to a method of teaching and learning that utilizes computer technology to enhance the educational experience. In ICAI, the computer acts as a tutor, providing instruction, feedback, and assessments to learners. This approach allows for personalized learning experiences tailored to the needs and pace of individual students.

ICAI typically involves interactive elements such as multimedia presentations, simulations, quizzes, and exercises that engage learners and promote active participation. The computer system may adapt its instruction based on the learner's responses, providing additional support or challenges as needed. ICAI can be utilized in various educational settings, including schools, universities, corporate training programs, and online learning platforms. It offers several advantages, including scalability, flexibility, and the ability to track and analyze student progress effectively. Additionally, ICAI can provide immediate feedback to learners, facilitating faster learning and comprehension of complex concepts. In present study, the researcher constructed an Interactive Computer Assisted Instruction programme in Educational Psychology subject for Student-Teachers of B.Ed. colleges.

2. Objectives of the Study

Objectives of present study are given as below.

1. To study effectiveness of ICAI programme on student-teachers in Educational Psychology subject.
2. To study effectiveness of ICAI programme on student-teachers in Educational Psychology subject in the context of teaching method.
3. To study effectiveness of ICAI programme on student-teachers in Educational Psychology subject in the context of gender.

4. To study effectiveness of ICAI programme on student-teachers in Educational Psychology subject in the context of their academic achievement.

3. Variables of the Study

The variables of present study are as given below:

3.1 Independent Variables

- Teaching Method
 - a)Teaching through ICAI programme
 - b)Teaching through Traditional Method

3.2 Moderate Variables

- Gender
 - a)Male Student-Teachers
 - b)Female Student-Teachers

3.3 Dependent Variables

Scores of achievement test

4. Hypotheses of the Study

Hypotheses of present study are given as below:

- Ho₁ There is no significant difference between sum rank of achievement test obtained by student-teachers of experimental group and controlled group.
- Ho₂ There is no significant difference between sum rank of achievement test obtained by male student-teachers of experimental group and controlled group.
- Ho₃ There is no significant difference between sum rank of achievement test obtained by female student-teachers of experimental group and controlled group.
- Ho₄ There is no significant difference between sum rank of achievement test obtained by male and female student-teachers of experimental group.

5. Limitations of the Study

Limitations of present study are given as below:

- 1.Present study was conducted of Student-Teachers selected from B.Ed. college of Sardar Patel University.
- 2.The researcher used self-constructed pretest and posttest. Therefore, all the limitations of this test were the limitations of present study.

6. Research Method

For present study, experimental research method was used by the researcher. From different experimental designs, the researcher used Two Equivalent group, post-test Design and Replication of the Programme research design.

7. ICAI Programme

The researcher constructed ICAI programme with the help of expert in software developing work. This was a desktop-based application constructed using Microsoft Visual Studio. This application was an interactive computer assisted programme in which texts, images, videos, sounds and inter active hyperlinks were embedded. This application has different psychological contents with self-evaluations MCQ-based tests which provide results after submitting the test. The application comprised following topics of Educational Psychology:

- 1.Psychology
- 2.Piaget's Theory
- 3.Lawrence Kohlberg
- 4.Eric Ericson
- 5.Defense Mechanism
- 6.Dyslexia
- 7.Exceptional Children

8. Research Tools

The researcher constructed a pretest and a posttest. In pretest, there were 25 questions having 1 mark each, total 25 marks. Each question has four responses out of which only one response is correct, test three responses were incorrect. In posttest there were 40 questions having 1 mark each, total 40 marks. Each question has four responses out of which only one response is correct, rest three responses were incorrect.

9. Sample of the Study

The researcher selected Smt. B.C.J. College of Education, Khambhat for present study. 38 students were selected from this college. Out of these students 6 male students and 13 female students in each, experimental and controlled group.

10. Procedure of Data Collection

The researcher carried out an experimentation of 16 days in selected college. In this college, 38 students were selected as sample. These students were given a pretest of 25 marks in Educational Psychology subject. On the basis of scores of this test, 38 students were divided in two equivalent groups using pair-match method. In each group, there were 6 male and 13 female students. One group was experimental group and another group was controlled group. Both groups were treated for 15 days. Experimental group was treated with ICAI programme and controlled group was treated with traditional teaching method. After this experimentation, a posttest of 40 marks was given to all selected student-teachers.

11. Data Analysis

The data of posttest were analyzed using Mann-Whitney U-test. The result of U-test for constructed hypotheses were as given in tables below.

H₀₁ There is no significant difference between sum rank of achievement test obtained by student-teachers of experimental group and controlled group.

Table 1: Mann-Whitney U-test between sum rank of student-teachers of experimental and controlled groups

Group	n	R	U	0.05	0.01	Significance
Experimental	19	550	1	113	93	0.01
Controlled	19	191	360			

According to above table, table value of U for student-teachers of Experimental group is 1 and for student-teachers of Controlled group is 360. For $n_1=19$ and $n_2=19$, table values are 113 at 0.05 level and 93 at 0.01 level. Here, calculated U value for student-teachers of Experimental group is less than table value at 0.01. Thus, hypothesis H_{01} is rejected and there is a significant difference between sum rank of student-teachers of Experimental group and Controlled group.

Moreover, sum rank of student-teachers of Experimental group is 550 and sum rank of student-teachers of Controlled group is 191. Sum rank of student-teachers of Experimental group is more than sum rank of student-teachers of Controlled group. This revealed that the effect of ICAI programme is positive on student-teachers.

H₀₂ There is no significant difference between sum rank of achievement test obtained by male student-teachers of experimental group and controlled group.

Table 2: Mann-Whitney U-test between sum rank of student-teachers of experimental and controlled groups

Group	n	R	U	0.05	0.01	Significance
Experimental	6	57	0	5	2	0.01
Controlled	6	21	36			

According to above table, table value of U for male student-teachers of Experimental group is 0 and for student-teachers of Controlled group is 36. For $n_1=6$ and $n_2=6$, table values are 5 at 0.05 level and 2 at 0.01 level. Here, calculated U value for student-teachers of Experimental group is less than table value at 0.01. Thus, hypothesis H_{02} is rejected and there is a significant difference between sum rank of male student-teachers of Experimental group and Controlled group.

Moreover, sum rank of male student-teachers of Experimental group is 57 and sum rank of male student-teachers of Controlled group is 21. Sum rank of male student-teachers of Experimental group is more than sum rank of male student-teachers of Controlled group. This revealed that the effect of ICAI programme is positive on male student-teachers.

H₀₃ There is no significant difference between sum rank of achievement test obtained by female student-teachers of experimental group and controlled group.

Table 3: Mann-Whitney U-test between sum rank of student-teachers of experimental and controlled groups

Group	n	R	U	0.05	0.01	Significance
Experimental	13	159.5	0.5	45	34	0.01
Controlled	13	91.5	168.5			

According to above table, table value of U for female student-teachers of Experimental group is 0.5 and for female student-teachers of Controlled group is 168.5. For $n_1=13$ and $n_2=13$, table values are 45 at 0.05 level and 34 at 0.01 level. Here, calculated U value for female student-teachers of Experimental group is less than table value at 0.01. Thus, hypothesis H_{03} is rejected and there is a significant difference between sum rank of female student-teachers of Experimental group and Controlled group.

Moreover, sum rank of female student-teachers of Experimental group is 57 and sum rank of female student-teachers of Controlled group is 21. Sum rank of female student-teachers of Experimental group is more than sum rank of female student-teachers of Controlled group. This revealed that the effect of ICAI programme is positive on female student-teachers.

H₀₄ There is no significant difference between sum rank of achievement test obtained by male and female student-teachers of experimental group.

Table 4: Mann-Whitney U-test between sum rank of student-teachers of experimental and controlled groups

Group	n	R	U	0.05	0.01	Significance
Experimental	6	72.5	26.5	16	10	NS
Controlled	13	117.5	51.5			

According to above table, table value of U for male student-teachers of Experimental group is 26.5 and for female student-teachers of Controlled group is 51.5. For $n_1=6$ and $n_2=13$, table values are 16 at 0.05 level and 10 at 0.01 level. Here, calculated U value for male and female student-teachers of Experimental group is more than table value at both levels. Thus, hypothesis H_{04} is not rejected and there is no significant difference between sum rank of male and female student-teachers of 132

Experimental group. This revealed that the effect of ICAI programme is similar on male and female student-teachers.

12. Major Findings

Major findings of this study are given below:

1. Sum rank of student-teachers of Experimental group is more than sum rank of student-teachers of Controlled group. This revealed that the effect of ICAI programme is positive on student-teachers.

1.1 Sum rank of male student-teachers of Experimental group is more than sum rank of male student-teachers of Controlled group. This revealed that the effect of ICAI programme is positive on male student-teachers.

- 1.2 Sum rank of female student-teachers of Experimental group is more than sum rank of female student-teachers of Controlled group. This revealed that the effect of ICAI programme is positive on female student-teachers.
2. There is no significant difference between sum rank of male and female student-teachers of Experimental group. This revealed that the effect of ICAI programme is similar on male and female student-teachers.

13. Final Thoughts

The main goal of researcher was to study the effectiveness of Interactive Computer Assisted Instruction Programme on student-teachers' achievement in education psychology. The researcher constructed ICAI based software in education psychology for student-teachers. The researcher experimented in two selected B.Ed. colleges. The obtained data of post-test were analyzed using U-test and results and interpretation are shown in this chapter.

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