

Val II, Issue:VIII, Sept 2012

ISSN : 2230-7850

Indian Streams Research Journal

Impact Factor 0.2105



Monthly Multidisciplinary Research Journal



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RNI MAHMUL/2011/38595

ISSN No.2230-7850

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Computer Based Learning Rediscovered Role In Achievement of Students In Secondary Schools

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Abstract:

This paper emphasizes that how the use of Information and Communication Technology through Computer Based Learning Approach will influence on achievement of students. Objectives of this paper is to study the effects of use of ICT through CBL on achievement of students in secondary school. In order to collect the required data , the computer software developed locally covering a particular topic according to the new curriculum. Sample of this study was two secondary schools as an experimental group. Out of which 37 boys and 37 girls were taken through randomly based on their pre-test achievements scores. For analysis of data descriptive statistics were used to describe and summarize the respondents

The results of the present study indicate that girls overall score considerably higher than boys in both pre-test post-test. The results also indicate that the above average students have higher mean scores as compare to average and below average students when using computer based learning approach. There is evidence that students can benefit when challenged and stimulated with authentic and complex problems in computer-supported learning environments (Jonassen, 2000). However, educators in public schools have also learned that providing well-designed direct instruction delivered via computers can efficiently and effectively help students and teachers cover ambitious state content requirements.

Introduction: The present age is the age of technology, whereby technology plays a key role in daily lives; this also includes the education system. There are endless possibilities with the integration of ICT in the education system. The 21st century will be an era of acute modernization and both teacher and students will have to cope with the changes and challenges. The information society requires a higher level of skill and knowledge of all individuals than did the industrial economy, geared to factory production. Environmental changes are inevitable and therefore a teacher is effective if he/she can adopt to and improve his/her environment. Teacher must be able to increase conceptual understanding and analytical ability among students through the use of diverse media.

“Educational systems around the world are under increasing pressure to use the new information and communication technologies (ICTs) to teach students the knowledge and skills they need in the 21st-century” (UNESCO, 2002; p.10). Thus, the key concern driving policy and community interest in the pedagogical integration of ICT is the premise that ICT is important for bringing changes to classroom teaching and learning so as to foster the development of students' 21st-century skills. Specifically, these skills include the ability to become lifelong learners within a context of collaborative inquiry and the ability to work and learn from experts and peers in a connected global community (Law, Pelgrum & Plomp, 2008;

Please cite this Article as :Dr. K. Dakshinamurthy , Computer Based Learning Rediscovered Role In Achievement of Students In Secondary Schools : Indian Streams Research Journal (Sept. ; 2012)



p. 121). This paper emphasizes that how the use of Information and Communication Technology through Computer Based Learning Approach will influence on achievement of students. changes are inevitable and therefore a teacher is effective if he/she can adopt to and improve his/her environment. Teacher must be able to increase conceptual understanding and analytical ability among students through the use of diverse media.

Computer -based learning (CBL) is a method, which use computer in learning media, strengthening students' motivation and education process. It gives opportunities to both students and teachers to learn by their speed and combine active learning with computer technology. Collette & Collette (1989) explained that using computer increase motivation and desire to lectures and laboratory in the process of learning.

There are a lot of important reasons for using computer and World Wide Web in science education. Educator not only can gather many materials from various centers. But also they can get text, graph, audio, video, picture, animation and simulation in the same media to students. Many studies also supported the idea that computer based learning has positive effect on students' achievements and attitudes (Aiello & Wolfe, 1980; Burns & Bozeman, 1981; Chang, 2002; Russell et all, 1997; Sanger & Greenbowe, 2000). The aim of this study is to understand the importance of CBL in science and its effect on students' achievements.

OBJECTIVES:

1. To study the effect of Pre-test achievement scores with respect to the boys and girls.
2. To study the effect of Post-test achievement scores with respect to the boys and girls.
3. To study the effect of ability groups (above average, average and below average) on their Pre-test achievement scores.
4. To study the effect of ability groups (above average, average and below average) on their Post-test achievement scores.
5. To study the interaction effect of CBL group with respect to the Post-test scores of gender and different ability groups of students in science.

Hypothesis

1. There is no significant difference between the Pre-test achievement scores of boys and girls.
2. There is no significant difference between the Post-test achievement scores of boys and girls.
3. There is no significant difference between the Pre-test achievement scores of different ability group students in science.

PAPER PRESENTED IN INTERNATIONAL EDUCATION MEET 2012- EDUCATION FOR GLOBAL EXCELLENCE

4. There is no significant difference between the Post-test achievement scores of different ability group students in science.
5. There is no significant difference between the interaction effect of CBL group on Post-test achievement scores of gender and different ability groups students in science.

Design of the study: The present study was aimed at investigating the cooperative effects of use of information and communication technology in teaching of science through CBL approaches. Since the study required the manipulation of the experimental variables hence experimental research method was the proper choice.

Population and Sample: The population of the study was comprised of students of class nine studying science. The study was conducted in two schools of Dharwad District. Sample of this study was two secondary schools as an experimental group. Out of which 37 boys and 37 girls were taken through randomly based on their pre-test achievements scores.

Tool and Data Collection: Two instruments were used for the collection of data required to answer the research questions. These were i) pre test, ii) post test. In order to collect the data required, the computer software developed locally covering a particular topic according to the new curriculum.

ANALYSIS AND INTERPRETATION:

Hypothesis – 1: There is no significant difference between the achievement of boys and girls with respect to Pre-test scores.

To achieve this hypothesis, the t-test was applied and the results are presented in the following table.

From the results of the above table, it can be interpreted that the achievement of boys and girls do not differ significantly with respect to Pre-test achievement scores ($t=1.3523$, $P>0.05$) at 5% level of significance. The null hypothesis is accepted and alternative hypothesis is rejected. Hence it can be concluded that boys and girls have similar pre-test scores.

Hypothesis – 2: There is no significant difference between achievement of boys and girls student with respect to post test scores.

To achieve this hypothesis the t-test was applied and the results are presented in the following table.

From the results of the above table, it can be interpreted that, the achievement scores of boys and girls students differ significantly with respect to post-test scores ($t=2.5620$, $P<0.05$) at 5% level of significance. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It can be concluded that, the boy and girl students have different post-test scores.

Hypothesis – 3: There is no significant difference between three ability groups (below average, average, above average) with respect to pre-test scores.

To achieve this hypothesis, the one way ANOVA test was applied and the results are presented in the following table.

Table – 3: Results of ANOVA test between three ability groups (below average, average. above average) with respect to pre-test scores.

From the above table , it can be interpreted that the students belongs to different ability group (Above average, average and below average) differ significantly with respect to per test achievement scores (t value – 16.1131, $P > 0.05$) at 5% level of significance. Hence the null hypothesis is rejected. Alternative hypothesis is accepted. It can be concluded that students belongs to above average have higher mean scores than that of other groups.

Hypothesis – 4: There is no significant difference between ability groups (above average, average, below average) with respect to post-test scores.

To achieve this hypothesis one way ANOVA test was a applied and the results are presented in the following table.

From the above results indicates. It can be interpreted that the students belongs to different ability groups (above average, average, below average) differ significantly with respect to post-test achievement scores (t- value 30.911, $P < 0.05$) at 5% level of significance. Hence the null hypothesis is rejected and alternative hypothesis is accepted. It can be concluded that above average students have higher mean scores than that of other groups.

Hypothesis – 5: There is no significant interaction effect of CBL with respect to senders (boys and girls) and ability groups (below average, average, above average) on post-test achievement scores.

To achieve this hypothesis, 3x2x3 ANCOVA test by post-test achievement as controlled variable was applied and results are presented in the following table.

FROM THE RESULTS OF THE ABOVE TABLE, IT CAN BE OBSERVED THAT,

- 1) The main effect of CBL groups (CBL) on post-test achievement scores is found to be significant at 5% level of significance, since the obtained t- value 8.3558 is greater than the f table value 3.07 at 0.05 level. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It means that, students have different post-test achievement scores when using computer based learning approach (CBL).
- 2) The main effect of gender (boys and girls) on post-test achievement scores in science students is found to be not significant at 5% level of significance. Since the obtained t value 0.0441 is smaller than the f table value 3.93 at 0.05 level. Hence, the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the boys and girls have different post-test achievement scores in science.
- 3) The main effect of ability groups (below average, average, above average) on post-test achievement scores in science students is found to be significant at 5% level of significance. Hence the obtained t value 4.8833 is greater than the f table value 3.07 at 0.05 level. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It means that, the different ability groups (below average, average, above average) have differ significantly in post-test achievement scores in science.
- 4) In 2-way interaction, CBL approach on gender (boys and girls) on post-test achievement scores in science is found to be not significant at 5% level of significance. Hence the obtained t value 4.9343 is greater than the f table value 3.07 at 0.05 level. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It means that when using Computer Based Learning approach, boys and girls students have different achievement post-test scores in science.
- 5) In 2-way interaction Computer Based Learning approach on ability groups (below average, average, above average) found to be not significant at 5% level of significance. Hence the obtained t value 3.8504 is greater than the f table value 2.45 at 0.05 level. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It means that, the students of different ability groups have significant difference in post-test achievement scores in science.

6) In 2-way interaction, gender (boys and girls) and ability groups (below average, average, above average) found to be not significant at 5% level of significance. Hence the obtained t value 5.6146 is greater than the f table value 3.07 at 0.05 level. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It means that the boys and girls with different ability groups have differ significantly with respect to post-test achievement scores in science.

7) In 3-way interaction, the effect of Computer Based Learning approach on gender (boys and girls) and ability groups (below average, average, above average) on post-test achievement scores in science found to be significant at 5% level of significance. Hence the obtained t value 3.0923 is greater than the f table value 2.45 at 0.05 level. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It means that, the boys and girls students with different ability groups have differ significant with respect to post-test achievement scores in science.

FINDINGS:

1) There is no significant difference between achievement of boys and girls with respect to pre test scores.

2) There is a significant difference between achievement of boys and girls with respect to post test scores. However girls have higher achievement scores than the boys with respect to the post test scores in science.

3) There is a significant difference between achievement scores of different ability groups (below average, average, above average) with respect to pre test scores. However the findings clearly indicates that the students belongs to above average group have higher mean scores when compare to other ability groups.

4) There is a significant difference between achievement scores of different ability groups (below average, average, above average) with respect to post test scores. However the findings clearly indicates that the students belongs to above average group have higher mean scores when compare to other ability groups.

5) In the main effects , there is no significant difference between the achievement scores of students when using Computer Based Learning Approach in the class.

6) In the main effects, Girls students have higher mean scores than the boys when using Computer Based Learning Approach (CBL) with respect to the post test.

7) In the main effects, the students belongs to above average group have higher mean scores when compare to other ability groups.

8) In the 2-way Interaction there is a significant difference between the effect of gender (boys and girls) on post test achievement scores when using Computer Based Learning Approach (CBL).

9) Similarly there is a significant difference between the effect of different ability groups with respect to the post test mean scores when using Computer Based Learning approach.

10) In 2-way interaction there is a significant difference between gender and ability groups when using Computer Based Learning approach.

11) In 3-way analysis there is a significant difference between using Computer Based Learning approach with gender and different ability groups.

CONCLUSION: Since the 1970s, many research studies have been conducted on the effect of computers in the schools. There also has been a shift in how computers are used that has not been adequately tested by researchers. Increasingly, educators are designing computer environments where learners interact with instructional events. Students are allowed to construct their learning activities based on their own interpretation of what is needed. They are not presented with information ; rather they are accepted to interact and even cause changes to information made available by computer based system.

To the end of this discussion, it can be concluded that current science reforms has encouraged the use of computers in learning and teaching science. Recent researches also provide strong evidence of the usefulness of computers in science learning. However, it can be safely committed that goal of the studies like the present study is to make room for experimental researches on a particular field of study and practices, likewise the use of Information and Communication Technology in instruction of science.

REFERENCES:

- Ø Aiello, N. C., & Wolfe, L. M. (1980). A meta-analysis of individualized instruction in science. Boston: American Educational Research Association.
- Ø Burns, P. K., & Bozeman, W. C. (1981). Computer-assisted instruction and mathematics achievement: is there a relationship? *Educational Technology*, 21 (10), 32-39.
- Ø Chang, C.Y. (2002) Does computer-assisted instruction + problem solving= improved science outcome? A pioneer study. *Journal of Educational Research*, 95(3), 143- 150.
- Ø Collette, A.T. & Collette, E.L. (1989). Science introduction in the middle and secondary schools

- Ø Jonassen, D.H. (2000). Toward a design theory of problem solving. Educational Technology: Research & Development, 48 (4).
- Ø Merrill, P.F., Tolman, M.N., Christensen. L., Hammons, K., Vincent, B.R., Reynolds, P.L, (1986). Computers in Education, Prentice-Hall, Englewood Cliffs, New Jersey.
- Ø Richard D., Foust, J.R. (2001). Assisted Learning in Chemistry, Chem. Educator 6(5), 306-316
- Ø Russell, J. W., Kozma, R. B., Jones, T., Wyckoff, J., Marx, N., & Davis, J. (1997). Use of simultaneous synchronized macroscopic, microscopic, and symbolic representations to enhance the teaching and learning of chemical concepts. Journal of Chemical Education, 74, 330-334
- Ø Sanger, M.J., & Greenbowe, T.J. (2000). Addressing student misconceptions concerning electron flow in electrolyte solutions with instruction including computer animations and conceptual change strategies. International Journal of Science Education, 22, 521-537.

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