NKT NATIONAL COLLEGE OF EDUCATION FOR WOMEN

(Autonomous)

UGC AUTONOMOUS GRANT FOR UPGRADATION OF SYLLABUS

WORKSHOP FOR UPGRADATION OF SYLLABUS AND TEACHING SKILLS

27th to 31st January 2020


N.K.T. NATIONAL COLLEGE OF EDUCATION FOR WOMEN
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ANALYSIS OF UGC AUTONOMOUS GRANT WORKSHOP ON UPGRADATION OF SYLLABUS AND TEACHING SKILLS

1. Introduction

Technology has impacted almost every aspect of life today, and education is no exception. Earlier, technology in education was a debatable topic amongst society. Everyone had their own views on modernizing education and making it technology aided. There were a huge number of positives and negatives to education technology. But, gradually as technology was embraced by the educational institutes, they realized the importance of technology in education. Its positives outnumbered the negatives and now, with technology, education has taken a whole new meaning that it leaves us with no doubt that our educational system has been transformed owing to the ever-advancing technology. Technology and education are a great combination if used together with a right reason and vision.

Computer-assisted instruction (CAI), a program of instructional material presented by means of a computer or computer systems.

The use of computers in education started in the 1960s. With the advent of convenient microcomputers in the 1970s, computer use in schools has become widespread from primary education through the university level and even in some preschool programs. Instructional computers are basically used in one of two ways either they provide a straightforward presentation of data or they fill a tutorial role in which the student is tested on comprehension.

Computer-based education (CBE) and computer-based instruction (CBI) are the broadest terms and can refer to virtually any kind of computer use in educational settings. Computer-assisted instruction (CAI) Computer Aided Instruction (CAI) is a narrower term and most often refers to drill-and-practice, tutorial, or simulation activities. Computer-managed instruction (CMI) Computer-managed instruction is an instructional strategy whereby the computer is used to provide learning objectives, learning

resources, record keeping, progress tracking, and assessment of learner performance. Computer based tools and applications are used to assist the teacher or school administrator in the management of the learner and instructional process.

Computer-assisted instruction (CAI) is an interactive instructional technique whereby a computer is used to present the instructional material and monitor the learning that takes place.CAI uses a combination of text, graphics, sound and video in enhancing the learning process. The computer has many purposes in the classroom, and it can be utilized to help a student in all areas of the curriculum.

CAI refers to the use of the computer as a tool to facilitate and improve instruction. CAI programs use tutorials, drill and practice, simulation, and problem solving approaches to present topics, and they test the student's understanding.

2. Need for the Present Study

There are countless reasons why technology is a key aspect of learning in the schools. Whether we like it or not, technology is everywhere; and in order for our students to survive in post-secondary education and the business world, they must know technology. Technology helps in education to create better educational syllabus, learning material, and future products and services. It's really important to integrate technology into classrooms. Technology is very important in education to create a new and innovative practical syllabus, improve the security of students, students' data management and analysis and performance reporting and teacher training programs. Technology is inspiring kids to become creative and innovative. Creativity and innovation will make students successful in their careers and life.

Classroom Technologies help students and teachers in the process of receiving and giving education systematically. Technology helps in facilitating the syllabus, acquisition of knowledge and skills. Educators & learners around the world can connect with each other on various Internet platforms. For such benefits, it's important to use technology in education.

Technological tools prepare students for future career challenges. The use of technology in education increased the level of accuracy in educational materials to a higher standard. Uses of new technologies are expanding. New computer programs and mobile apps are all playing their role to solve daily life problems.

Information and Communication Technology (ICT) in education is the mode of education that use information and communications technology to support, enhance, and optimise the delivery of information. Worldwide research has shown that ICT can lead to an improved student learning and better teaching methods. A report made by the National Institute of Multimedia Education in Japan, proved that an increase in the use of ICT in education with integrating technology to the curriculum has a significant and positive impact on students' achievements. The results specifically showed that the students who are continuously exposed to technology through education has better 'knowledge', presentation skills, innovative capabilities, and are ready to take more efforts into learning as compared to their counterparts.

Smart Classes

Smart Classrooms are technology enhanced classrooms that foster opportunities for teaching and learning by integrating learning technology, such as computers, specialized software, audience response technology, assistive listening devices, networking, and audio/visual capabilities. Classroom Services leads the support, design, and planning for campus learning spaces.

The concepts of smart classrooms in terms of pedagogical setting and arrangement should be considered during the designing. The design transforms learning spaces into modern smart classrooms. There are seven basic concepts of a smart classroom: adaptability, comfort, connectivity, multiplicity, openness, personalization and safety/security.

3. Review of Related Literature:

Zamir and Thomas (2019) aimed to find the effect of university teachers' perceptions, attitude, and motivation towards their readiness for the integration of ICT in their classroom teaching. Based on their findings, they recommend that university teachers with basic ICT literacy should be encouraged to have a positive attitude toward technology use for discharging professional responsibilities.

Prestridge et.al. (2019) focused on the use of digital applications that leverage opportunities for teachers in the design phase, that is, at the time they are developing and curating curriculum materials and designing learning sequences within their discipline areas before implementation in the classroom. Their findings suggest that each teacher leveraged their online social media as their first approach or starting point within their design activities, with a curiosity to investigate the pedagogical application of a 'new' tool.

Regan (2019) tried to understand teacher attitudes and perceptions regarding writing instruction and use of technology. In their study they found Teachers indicated that barriers to using technology included that it was too time-consuming; they had limited access; and they perceived access to be a competition. However, teachers revealed that technology was positive for students with disabilities, differentiating instruction, and providing twenty-first-century learning opportunities.

Celebi (2019) conducted a study on the integration of ICT in a Turkish Secondary School which suggests teacher motivations and attitudes play an equally important role in internet integration into classroom for educational innovations as ICT investments.

Raja (2018) compared experiential learning method and traditional learning method to explore which method inculcates and improves the communication skills of business administration students of a private sector university, which proved that experiential learning method improves students' communication skills better than traditional communication skills.

Arancibia Herrera (2018) conducted a study on secondary history teachers' teaching conceptions as a precursor to the ways in which they use computing technology in the classroom and found patterns among educational uses of technology in relation to teaching conceptions in terms of the allotment of time and the manner of teacher technology use, and less sharply defined patterns were also noted in student technology use and teacher-student-technology interactions.

Herro (2018) conducted a longitudinal study in which middle school math and science teachers enacted STEAM (science, technology, engineering, art and mathematics) teaching in their classroom after participating in intensive STEAM professional development aimed at increasing effective STEAM teaching. Results suggest 17 of the 21 teachers participating in the study demonstrated technology integration involving one or more areas of instructional approaches, assessment and student use.

Gurgenidze (2018) argued that incorporating existing and creating new technologies in English language teaching is of crucial importance for developing English language teaching and learning in Georgia.

González-Sanmamed (2017) investigated the attitudes school teachers have towards information and communication technologies (ICT) with the different levels of technology integration in schools and they suggest level 4 (elementary) school teachers exhibit better attitudes towards ICT. Thus, effective ICT integration in the classroom can perform as a catalyst for educational innovation.

Buss and others (2017) examined the benefits of preparing teacher candidates (TCs) to integrate technology into their future teaching by infusing technology integration instruction into program methods courses and found technology integration was successfully taught in technology-infused methods courses, but we must continue to improve this technology-infused methods course instruction and instructors to more fully achieve our goals of sound technology integration by all TCs.

Banister and Reinhart (2015) suggest that active learning environments, addressing personalized needs and providing evidence of student competencies, may be accomplished effectively by integrating mobile technologies more prominently in K-12 classrooms.

From the above study it is evident that use of technology facilitates learning. The success stories tells us the benefits of various forms of technology to the students at all levels. The present study insists on the upgradation of skills of the teacher trainees in the usage of smart boards for teaching the school subjects at the High school level. This study also facilitates the upgradation of syllabus of the B.Ed. curriculum.

4. Statement of the Problem

The technology in education increased the level of accuracy in educational materials to a higher standard. Uses of new technologies are extending. Equipping the teacher trainees with technology and also giving them training in a systematic way is the felt need of the hour. The workshop planned to experiment the method of teaching through smart boards and use the findings to upgrade the B.Ed. Syllabus and skills required.

5. Objectives of the Present Study

The present study aims at improving academic achievements in all five subjects i.e., Tamil, English, Mathematics, Science and Social Science by using smart boards in classrooms. The specific objectives are:

(i) To prepare a plan of action to teach using smart boards in classrooms;
(ii) To investigate the possible significant difference between post-test scores of academic achievement in Tamil among standard IX students in Experimental and Control Groups;
(iii) To investigate the possible significant difference between post-test scores of academic achievement in English among standard IX students in Experimental and Control Groups;

(iv) To investigate the possible significant difference between post-test scores of academic achievement in Mathematics among standard IX students in Experimental and Control Groups;

(v) To investigate the possible significant difference between post-test scores of academic achievement in Science among standard IX students in Experimental and Control Groups;

(vi) To investigate the possible significant difference between post-test scores of academic achievement in Social Science among standard IX students in Experimental and Control Groups;

6. Hypotheses

(i) There is no significant difference between post-test scores of academic achievement in Tamil among standard IX students in Experimental and Control Groups.

(ii) There is no significant difference between post-test scores of academic achievement in English among standard IX students in Experimental and Control Groups.

(iii) There is no significant difference between post-test scores of academic achievement in Mathematics among standard IX students in Experimental and Control Groups.

(iv) There is no significant difference between post-test scores of academic achievement in Science among standard IX students in Experimental and Control Groups.

(v) There is no significant difference between post-test scores of academic achievement in Social Science among standard IX students in Experimental and Control Groups.

7. Method of Investigation

Methodology is an important aspect of any kind of research work. Each research study has its own objectives. The procedure adopted by the researcher for the investigation is

known as methodolgy. Research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. In fact, the research design is the conceptual structure within which research is conducted and it constitutes the blue print for collection, measurement and analysis of the collected data. As such the design includes an outline of what the research will do from framing the hypothesis and its operational implications to the final analyses of the data.

Research design is very much required since it facilitates the smooth sailing of the various research operations, thereby making research as efficient as possible, yielding maximal information with minimal expenditure of effort, time and money. We need a research design or a plan in advance of data collection and analysis for our research project.

Research design stands for advanced planning of the method to be adopted for collecting the relevant data and techniques to be used in their analysis. Keeping in view the objectives of the research and the availability of staff, time and money, preparation to the research design should be done with great care as any error in it may upset the entire project. Research design in fact, has a great bearing on the reliability of the results arrived at end as such constitutes the firm foundation of the entire edifice of the research work. Design helps the researcher to organize his ideas in a form whereby it will be possible for him to look for flaws and inadequacies. Such a design can ever be given to others for their comments and critical evaluation.

The present chapter deals with the formulation of hypotheses and the description of the method includes sample characteristics, selection of tools and procedure adopted for investigation.

7.1 Research Design

The present study envisages the effect of using smart boards in classrooms on academic achievement among standard IX students using experimental design. The design has been drawn as follows:

Table-1: Research Design

Groups	Sample	Pre-test Measures	Teaching	Post-test Measures
Experimental Group	24	Academic Achievement in all Five Subjects	Using Smart Boards	Academic Achievement in all Five Subjects
Control Group	23	Academic Achievement in all Five Subjects	Traditional Instructional Strategy	Academic Achievement in all Five Subjects

This design was tested with the following experimental procedure.

E = A ---------- S ---------- B

C = A ---------- T ---------- B

Where E = Sample chosen for the Experimental Group

C = Sample chosen for the Control Group

A = Pre-test measures of Academic Achievement in all 5 subjects

B = Post-test measures of Academic Achievement in all 5 subjects

S = Smart Board

T = Traditional Method of Instructional Strategy.

The instructional treatment was conducted for one week in the academic year 2019-2020 from 27th to 31st January in a N.K.T. National Girls' Higher Secondary School. Students from standard IX A were enrolled in the study.

First, topics in standard IX text book were selected and a pre-test was conducted to estimate the academic achievement in all the five subjects among the students and to check if there is any significant difference between the two groups with regard to their academic achievement in all the subjects.

Next, drawing on relevant research, all activities were developed by the researchers. Lesson plans for the procedure were based on Anderson and Krathwohl's Taxonomy (2001).

In the next step, the students in the control group were instructed only with traditionally designed learning material. Most of the time, the teacher presented the topics and the students listened to their teacher and answered the questions asked by their teacher. At the same time they carried out activities in their text-books.

However, the instructions for the experimental group varied. Lesoon plans were prepared with various activities based on using Smart Boards in the classrooms. Teachers used various videos related to their topic and this created more interest among the students.

7.2 Sample Distribution

The chosen sample is 47 students (girls) from standard IX.

Experimental Group	=	24 Students
Control Group	=	23 Students

7.3 Preparation of Achievement Tests

Achievement tests were prepared for each subject separately and were subjected to content validity with the help of subject experts.

(i) Tamil Achievement Test

In order to collect the data related to academic achievement of the students in Tamil, a Tamil test was developed by the researcher. A test including 24 items was developed and the test was established. This test is used to measure the students' academic achievement in selecting standard IX Tamil topics. The topic chosen for the present study is Periyarin sinthanaigal. The test items developed to measure the objectives of academic achievement levels of the students in Tamil lessons in standard IX is based on the objective-wise table.

(ii) English Achievement Test

In order to collect the data related to academic achievement of the students in English, an English test was developed by the researcher. A test of twenty three items including objective and subjective type questions was developed by the researcher. The achievement test was conducted for fifty marks. This test was used to measure the students' academic achievement in English of standard IX students. The topic chosen for this study was A Birthday Letter and Diary Entry. The test items developed to measure the objectives of academic achievement levels of the students in Science lesson in standard IX is based on the objective-wise table.

(iii) Mathematics Achievement Test:

In order to collect the data related to academic achievement of the students in Mathematics, a Mathematics test was developed by the researcher. A test of twenty four items including objective and subjective type questions was developed by the researcher. The achievement test was conducted for fifty marks. This test was used to measure the students' academic achievement in Mathematics of standard IX students. The topic chosen for this study was Probability.

(iv) Science Achievement Test

In order to collect the data related to academic achievement of the students in Science, a Science test was developed by the researcher. Atest including 25 items was developed and the test was established. This test is used to measure the students' academic achievement in select standard IX Science topic. The topic chosen for the present study is Carbon and its Compounds. The test items developed to measure the objectives of academic achievement levels of the students in Science lesson in standard IX is based on the objective-wise table.

(v) Social Science Achievement Test

In order to collect the data related to academic achievement of the students in Social Science, a Social Science test was developed by the researcher. A test of eighteen items including objective and subjective type questions was developed by the researcher. The achievement test was conducted for fifty marks. This test was used to measure the students' academic achievement in Social Science of standard IX students. The topics chosen for this study were The American Revolution and The French Revolution.

8. Statistical Analysis

The statistical analysis gives meaning to the meaningless numbers, thereby breathing life into a lifeless data. The results and inferences are precise only if proper statistical tests are used.

Hypothesis-(i): There is no significant difference between the post-test scores of academic achievement in Tamil among standard IX students in Experimental and Control Groups.

Table-2: The Post-test Scores of Academic Achievement in Tamil of Standard IX Students in Experimental and Control Groups.

Variable	Sample Size	Mean	SD	SEM	SED	CR
Control Group	21	60.24	9.10	1.99	3.41	3.00
Experimental Group	21	70.48	12.70	2.78		

In the above Table, the mean and standard deviation values of post test scores in Tamil are 60.24 and 9.10 respectively for control group and 70.48 and 12.70 respectively for experimental group. The critical ratio value is 3.00, which is significant at 0.01 level. Hence the null hypothesis is rejected at 0.01 level of significance.

It is evident that the performance of the students in experimental group is significantly more when compared to the students in control group in Tamil.

Hypothesis-(ii): There is no significant difference between the post-test scores of academic achievement in English among standard IX students in Experimental and Control Groups.

Table-3: The Post-test Scores of Academic Achievement in English of Standard IX Students in Experimental and Control Groups.

Variable	Sample Size	Mean	SD	SEM	SED	CR
Control Group	21	48.14	18.09	3.95	4.67	2.10
Experimental Group	21	62.10	11.41	2.49		

In the above Table, the mean and standard deviation values of post test scores in English are 48.14 and 18.09 respectively for control group and 62.10 and 11.406

respectively for experimental group. The critical ratio value is 2.10, which is significant at 0.01 level. Hence the null hypothesis is rejected at 0.01 level of significance.

It is evident that the performance of the students in experimental group is significantly more when compared to the students in control group in English.

Hypothesis-(iii): There is no significant difference between the post-test scores of academic achievement in Mathematics among standard IX students in Experimental and Control Groups

Table-4: The Post-test Scores of Academic Achievement in Mathematics of Standard IX Students in Experimental and Control Groups

Variable	Sample Size	Mean	SD	SEM	SED	CR
Control Group	21	40.67	30.00	6.55	8.14	2.60
Experimental Group	21	61.76	22.167	4.84		

In the above Table, the mean and standard deviation values of post test scores in Mathematics are 40.67 and 30.00 respectively for control group and 61.76 and 22.17 respectively for experimental group. The critical ratio value is 2.60, which is significant at 0.01 level. Hence the null hypothesis is rejected at 0.01 level of significance

It is evident from the post test scores that the performance of the students in the experimental group is significantly more when compared to the students in control group in Mathematics.

Hypothesis-(iv): There is no significant difference between the post-test scores of academic achievement in Science among standard IX students in Experimental and Control Groups.

Table-5: The Post-test Scores of Academic Achievement in Science of Standard IX Students in Experimental and Control Groups

Variable	Sample Size	Mean	SD	SEM	SED	CR
Control Group	21	51.81	17.16	3.74	5.07	2.9
Experimental Group	21	66.57	15.69	3.42		

In the above Table, the mean and standard deviation values of post test scores in Science are 51.81 and 17.16 respectively for control group and 66.57 and 15.69 respectively for experimental group. The critical ratio value is 2.9, which is significant at 0.01 level. Hence the null hypothesis is rejected at 0.01 level of significance

It is evident that the performance of the students in experimental group is significantly more when compared to the students in control group in Science

Hypothesis-(v): There is no significant difference between the Post-test Scores of Academic Achievement in Social Science among Standard IX Students in Experimental and Control Groups

Table-6: The Post-Test Scores of Academic Achievement in Social Science of Standard IX Students in Experimental and Control Groups

Variable	Sample Size	Mean	SD	SEM	SED	CR
Control Group	21	39.18	24.60	5.37	6.61	3.38
Experimental Group	21	62.19	17.70	3.86		

In the above Table, the mean and standard deviation values of post test scores in Social Science are 39.18 and 24.60 respectively for control group and 62.19 and 17.70

respectively for experimental group. The critical ratio value is 3.38, which is significant at 0.01 level. Hence the null hypothesis is rejected at 0.01 level of significance

It is evident in posttest sores that the performance of the students in experimental group is significantly more when compared to the students in control group in Social Science

9. Findings of the Study

The major findings of the study are as follows:

(i) Students showed an improvement in their academic achievement when Tamil Subject was taught using smart board

(ii) Students showed an improvement in their academic achievement when English Subject was taught using smart board

(iii) Students showed an improvement in their academic achievement when Mathematics Subject was taught using smart board

(iv) Students showed an improvement in their academic achievement when Science Subject was taught using smart board

(v) Students showed an improvement in their academic achievement when Social Science Subject was taught using smart board

10. Suggestions

The workshop aimed to improve the skills of B.ED. teacher trainees and thereby upgrade the syllabus of the B.Ed. curriculum. The study revealed the importance of technology based classroom instructions for all the academic subjects like Tamil, English, Mathematics, Science and Social Science through smart boards.

Smart boards intrinsically and extrinsically motivated the students to perform better in the classes .Effective training will certainly enhance the skills an d also the confidence level of students. The study is limited to High School level students .Smart boards may be improvised to cater the needs of students at all levels.

11. Conclusion

Classroom Technologies have become essential in carrying out daily learning activities. School authorities should come forward to equip their classroom with smart boards. Teachers educators should train their students to help the students to improve the performance in various ICT tools .Policy makers has to implement the research findings to include all possible changes that will enhance Quality Education.

References

Ahmed, Abdelrahman Mohammed; et.al. (2019). An Investigation of Faculty Members' Beliefs and Barriers to Successful ICT Integration into Teaching at Sultan Qaboos University. ***Journal of Educational Technology*****, 16**(2), pp. 50-61

Arancibia Herrera, M. (2018). The Impact of Secondary History Teachers' Teaching Conceptions on the Classroom Use of Computers. ***Technology, Pedagogy and Education***, **27**(1), pp. 101-114.

Banister, S. and Reinhart, R.V. (2015). Examining Digital Innovation in K-12 Schools: Variances Related to Identified School Typologies. ***International Journal of Technology in Teaching and Learning*****, 11**(2), pp. 104-114.

Blayone, Todd J. B. (2019). Theorizing Effective Uses of Digital Technology with Activity Theory. **Technology, Pedagogy and Education**, **28**(4), pp. 447-462.

Buss, Ray R.; Lindsey et.al. (2017). Assessing a Technology Infusion Approach in a Teacher Preparation Program. ***International Journal of Technology in Teaching and Learning,*** **13**(1), pp. 33-44.

Celebi, N. (2019). Teachers and ICT's in Secondary Education: The Turkish Case. ***International Journal of Technology in Education and Science*****, 3**(1), pp. 19-28.

Debasish Debbarma, Jantu Das (2019) Attitude of Teachers towards using ICT in Schools: A Study in Tripura. ***Research and Reflections on Education*****, 18**(4), pp. 2-5.

Kuldeep Kaur Juneja (2019) Digitilization of Education and its impact on Teaching and Learning. ***Edutrack,*** **18**(9).

González-Sanmamed, M. (2017) We Can, We Know How. But Do We Want To? Teaching Attitudes towards ICT Based on the Level of Technology Integration in Schools.**Technology, Pedagogy and Education**, v26 n5 p633-647

Gurgenidze, M. (2018) Technology Assisted English Language Learning and Its Possible Benefits in Georgia**.** ***International Journal of Technology in Education and Science*****, 2**(1), pp. 31-34

Herro, Danielle; Quigley, Cassie (2018). Examining Technology Integration in Middle School STEAM Units. ***Technology, Pedagogy and Education***, **27**(4), pp. 485-498

Prestridge, S., Tondeur, J. and Ottenbreit-Leftwich, A.T. (2019). Insights from ICT-Expert Teachers about the Design of Educational Practice: The Learning Opportunities of Social Media. ***Technology, Pedagogy and Education*****, 28(**2), pp. 157-172

Raja, F. (2018). Comparing Traditional Teaching Method and Experiential Teaching Method Using Experimental Research. ***Journal of Education and Educational Development*****, 5**(2), pp. 276-288.

Regan, K. (2019) Teacher Perceptions of Integrating Technology in Writing. ***Technology, Pedagogy and Education*****, 28**(1), pp. 1-19

Ugur, NaciyeGüliz (2020) Digitalization in Higher Education: A Qualitative Approach. ***International Journal of Technology in Education and Science*****,4**(1), pp.18-25.

Zamir, S. and Thomas, M. (2019). Effects of University Teachers' Perceptions, Attitude and Motivation on Their Readiness for the Integration of ICT in Classroom Teaching. ***Journal of Education and Educational Development,*** **6**(2), pp. 308-326.