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Effect of Information and Communication Technology (ICT) On Achievement of Senior Secondary School Students in Commerce

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ABSTRACT

Information and Communication Technologies (ICTs) is a broader term for Information Technology (IT), which refers to all communication technologies, including the internet, wireless networks, cell phones, computers, software, middleware, video-conferencing, social networking, and other media applications and services enabling users to access, retrieve, store, transmit, and manipulate information in a digital form. The use of ICT in education takes precedence over educational technology growth. ICT is incredibly beneficial in the classroom when it comes to teaching commerce. It makes teaching instructions easier, more engaging, and creative for teachers by integrating multimedia. This study aimed to look at how students use technology for learning in the undergraduate commerce program and what they think about it. In the present study, Non Randomized Control Group Pre-test Post-test Quasi Experimental design was applied with a purposive sample in the form of intact sections of class 12th of the school. This research design was used to study the effect of independent variables Information and Communication Technology (ICT) and Conventional teaching method on dependent variables Achievement. students in the ICT group were taught using a power point programme saved to CD-ROM. The study comprised a control group (40 students) and an experimental group (40 students). The intact sections were equated on intelligence and socio-economic status. Findings of the study reported that the post-test achievement means scores of the experimental and control groups vary substantially on the side of the experimental group, this means that students who were taught using the ICT method performed significantly better in Commerce than students who were taught using the traditional method.

Keywords: Information and communication Technology (ICT), Achievement, Commerce.

1. INTRODUCTION

Information and communication technologies (ICT) are described as a "diverse collection of technologies, tools, and resources used to communicate, as well as to develop, disseminate, store, and manage information." It refers to a category of technology that consists of electronic devices and associated human interactive materials that allow users to use them for a variety of teaching-learning and personal purposes. Computers, internet broadcasting systems, and telephony are examples of these technologies. ICT is a type of technology that uses information to fulfill human needs or goals, such as processing and sharing data. In education, information processing, and communications facilities and features that promote teaching, learning, and a variety of educational activities are known as (ICT).

ICT in education refers to the application of these innovations in the field of education. Because it encompasses both hardware / software strategies that potentially improve educational outcomes, the term could also be used as a substitute for technology in the classroom. The term ICT refers to the infrastructures, pc, and resources of digital technology in the era of computing; thus, it is vital to address the use of Technology in teaching by focusing on computer-based technological advances. We are living in the modern age. It's difficult to think of a single case in our everyday lives that does not include the use of ICT. There are no exceptions in our colleges or classrooms. This course is designed to familiarize you with these innovations so that you can effectively incorporate them into your teaching and learning practices.

Impact of Information and Communication Technology on Commerce Learning

ICT is becoming more prevalent in many sectors of education, particularly in teaching. In contrast to the traditional approach of professors lecturing and active readers, it has made teaching more interesting and participatory. It has result in many academic teachers' teaching techniques improving in a good way. However, teachers (Commerce teachers) rarely employ ICT in their classrooms, and as a result, commerce, a practical subject, is taught in a spectacular way using just the lecture style, without offering any practical knowledge, i.e. hands-on experience. It results in lack learning experiences for students (commerce students), resulting in low employability not only among graduates but also among post-graduates. They are having difficulty not only getting work, but also launching a business. In their daily lives, they have trouble dealing with banks, insurance companies, brokerage firms, sales tax/income tax offices, as well as other institutions. This vicious cycle of illiteracy regarding practical business knowledge must be broken. With the use of ICTs, there is a lot that could be done to improve commerce education. There is indeed a significant amount that can be accomplished to enhance commerce teaching through the use of ICT. So, let us look at a novel approach to teaching commerce using ICT, emphasizing the importance of ICT in commerce teaching and offering suggestions for promoting ICT in commerce teaching for both teachers and students' benefit. ICT is incredibly beneficial in the classroom when it comes to teaching commerce. In the following respects, it makes teaching instructions easier, more engaging, and creative for teachers by integrating multimedia (images, videos, colors, animation, and so on) in addition to plain text. It helps teachers to activate students' various senses, such as touch, vision, and hearing, to help them remember what they've learned over a longer period.

ACHIEVEMENT

Achievement is a measure of performance, knowledge, skill of a person in a given area at a particular time. Performance in the achievement test (developed by the investigator) in Commerce as indicated by the scores of the students is considered Commerce achievement in the present study.

Studies Related To Use of ICT in Teaching of Commerce

Khaleeq Ahmed & Arif Mohammad (2019) research worked on "ICT: An Alternative to Conventional Methods of Teaching-Learning in Commerce Education". This study analyzed the introduction of ICT's in Commerce education and its utilization in teaching-learning of Commerce. The research finding shows that in commerce education, teaching-learning through ICT's is a growing phenomenon in the field of the educational process. Various devices and software such as computers, televisions, projectors, the internet etc. can be utilized in Commerce education. Hence it is beneficial on the part of the teachers and educational planners to implement and inculcate it in the teaching-learning process, not only at the senior secondary stage but at every stage of the teaching process.

Jain Dhanraj (2020) researched "An Overview of Commerce Education in India" The necessary data for the current investigations were mostly gathered from secondary sources. These studies give us the urge to identify the flaws in commerce education and propose corrective solutions that, if adopted, will result in the professionalization of commerce education. For the achievement of the goals, It has been revealed that commerce education in India is currently facing challenges. It happened as a result of challenges raised by globalization, changes in Indian financial sectors, and so on.

NEED OF THE STUDY

Technology can help to improve education in a variety of ways. Most significantly, incorporating technology into the classroom can boost student motivation (Anderson, 2000). Technology empowers students by allowing them to engage in the learning process. Instead of being concentrated on the teacher, the profession becomes more concentrated on the students. As per the studies, engaging and engrossing active learning that relies on learners' past knowledge and information allows them to improve their grasp of the topic is more likely to increase student confidence and motivation in their cognitive skills.

Advantages of integration of technology in research include the technological components of technology integration to enhance content validity, increase access to information, favorably impact student learning outcomes, and encourage individual meta-cognitive abilities. Many researchers noted that ICT is already changing the way people live, function, and interact. To begin with, people's lifestyles and work environments are evolving. Global and multicultural awareness are far more important to today's kids. As a result, under the data communication paradigm of education, today's students do not wish to be passive recipients of knowledge.

They would much rather be included in the education process as actively involved. We can no longer see learners as "empty vessels waiting to be filled," as Driscoll (1994) put it, but rather as "active species seeking purpose." To succeed in today's environment, you must first understand what it takes to be successful, students must be able to

work cooperatively with others, think innovatively, and focus on their learning process. ICTs are effective tools for facilitating the transition to student-centered learning and modern teacher-student roles.

ICT increases student comprehension of fundamental concepts and strengthens the way Commerce should be taught. Many studies have been performed to determine the benefits of using ICT in commerce. ICT promotes greater cooperation among students and encourages contact and information sharing, according to Becta (2003). ICT offers pupils immediate and accurate assessment, resulting in increased engagement and motivation. It also allows them to devote lesser time to laborious numerical calculations and much more time to responding strategies and explanations. This study aims to look at how students use technology for learning in the undergraduate commerce program and what they think about it. Although the research is focused on business, it could have ramifications for the entire student body.

As a result, this research aims to learn about in both big and small classes, students' perceptions of conventional and advanced course curriculum content. As a response, a research was carried out to establish the practicality of integrating technologies into the designed curriculum, as well as the methodologies employed and whether the technology would enhance student learning. Despite the reality that the program was about commerce, it has the potential to have a larger effect on the educational culture. This thesis examines four major study areas: The first question is: Are the students aware of any learning aids? Second, how do students interpret the efficacy of learning aids in terms of making learning more conducive? Is there a gap in the use of learning aids in different commerce education programs? And, finally, what is the effect of using learning aids (with a particular focus on LCD projectors) on student performance?

OBJECTIVES OF THE STUDY

- To compare the Achievement Scores of Experimental and Control Group of Senior Secondary School Students in Commerce before Experimental Treatment.
- To compare the Achievement Scores of Experimental and Control Group of Senior Secondary School Students in Commerce After Experimental Treatment.
- To compare the Mean gain Achievement Scores of Experimental and Control Group of Senior Secondary School Students in Commerce.

HYPOTHESES OF THE STUDY

- There exists no significant difference between Achievement Scores of Experimental Group and Control Group of senior secondary school students in Commerce before experimental Treatment.
- There exists no significant difference between Achievement Scores of Experimental Group and Control Group of senior secondary school students in Commerce after experimental Treatment.
- There exists no significant difference between the Mean Gain Achievement Scores of Experimental Group and Control Group of senior secondary school students in Commerce..

2. METHODOLOGY OF THE STUDY

Variables Involved

(i) Variables that are Independent:

- Information and Communication Technology (ICT)
- Conventional Teaching Approach

(ii) Variables that are Dependent:

- Achievement
- Retention

STUDY DESIGN

In the present study, Non Randomized Control Group Pre-test Post-test Quasi Experimental design was applied with a purposive sample in the form of intact sections of class 12th of the school. This research design was used to study the effect of independent variables (Information and Communication Technology (ICT) and Conventional teaching method) on dependent variables (Achievement and Retention). A figurative representation of the design is given in Table 1.

Table 1: Design of the Study

Groups	Pre –Test	Independent variable	Post-test
Experimental Group	A1	Information and Communication Technology (ICT)	A2
Control Group	B1	Conventional teaching method	B2

Population and sample

The investigator selected the school deliberately and the students at random. Just 80 students were chosen at random from the intact two parts of the 12th class at RPS Public School in Kosli, Rewari District. As shown in Table 2, one segment served as the experimental group, while the other served as the control group.

Table 2: Sample of the Study

S. No.	Groups	Section	Total No. of Students
1.	Experimental Group	A	40
2.	Control Group	B	40

Tools for data Collection:

Standardized Test

- Group Test of Intelligence (Ahuja, 2012)
- Socio –Economic Status Scale (SESS-UR) (Kalia & Sahu, 2012)

Self-developed Tools

- Information and Communication Technology (ICT), development of PowerPoint Program.
- Achievement Test in Commerce for 12th class students.
- Lesson Plan based on Information and Communication Technology (ICT)
- Lesson Plan based on Conventional Teaching Method

PROCEDURE TO BE FOLLOWED

The experiment's process was divided into two stages:

1. The sample's selection
2. Carrying out the experiment

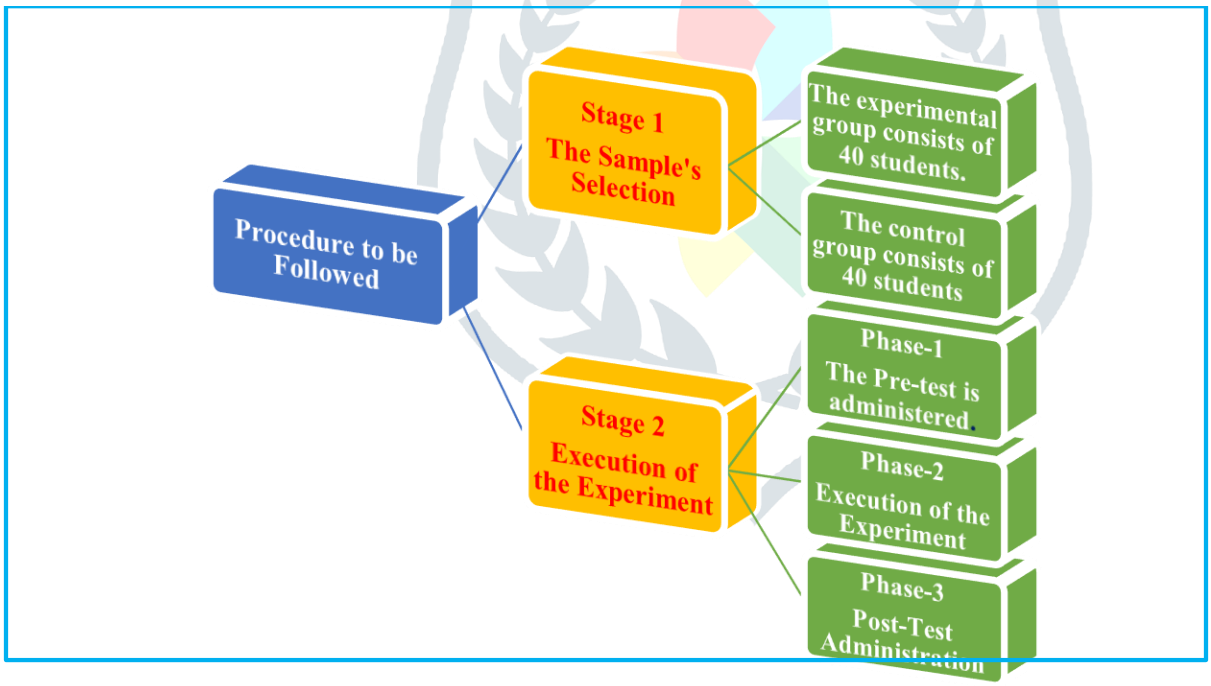

Fig.: The Experiment's Methodological Steps

Stage 1: Selecting the sample

The participants in this study were 80 students in class 12th (40 in the control group and 40 in the experimental group) from RPS Public School in Kosli, Rewari district., Haryana.

- **Selecting an Experimental Group**

The experimental group comprised of 40 students in the 12th grade from Section 'A' of RPS Public School in Kosli, Rewari Distt., Haryana.

- **Selecting a Control Group**

A control group of 40 students from Section 'B' of the same school's 12th grade served as the study's control group. The group was introduced to traditional teaching methods.

Stage 2: Carrying out the experiment

Phase 1: Administration of the Pre-test

During this procedure, the Socio-Economic Status Scale, Group Test of Intelligence, and Achievement Test in Commerce were all used. All pupils in both classes were given these three assessments (Experimental and Control). Each pupil was given their own response sheet. The scores for the response sheets were determined using a scoring key for the assessments that had already been planned. During the experiment, the class teacher's full cooperation or support was required. The experimental group's students were given a presentation of their study materials, which helped them overcome their curiosity and anxiety. The students in the control group were also told about the tests' goals, among other items, in an attempt to generate their participation in the study's execution.

Phase 2: Execution of the Experiment

For both groups of students, the second phase of the experiment concentrated on the practical implementation of Information and Communication Technology (ICT) in the classroom (Experimental group and Control group). During this procedure, the experimental students were taught through information and communication technology (ICT), whereas the control students were taught through traditional methods. Both groups received educational treatment for about 23 days. Both gatherings were given the same content.

Phase 3: The Post-test is administered

After the instructional process was completed, the researcher tested the individuals of the experimental and control groups on dependent variables such as achievement and retention.

❖ Statistical Techniques

The data collected was statistically analyzed using the following techniques:-

- Descriptive statistics such as means and SDs were worked out on the score of Achievement test.
- Inferential Statistical techniques such as t-test was employed for testing significance of the difference between the experimental and control the group on the basis of pre-test, post-test and gain scores.

3. RESULT

➢ **Comparison of Experimental And Control Group Achievement Scores Of 12th Class Students In Commerce (Before Experimental Treatment)**

TABLE

Achievement of experimental and control groups

(Mean, standard deviation, and value)

Groups	N	Mean	Std. Deviation	SEM	SED	't' value	df	Significance 0.05 level
Experimental Group	40	45.55	8.64	1.37	1.74	1.90	78	**Non Significant**
Control Group	40	42.23	6.84	1.08				

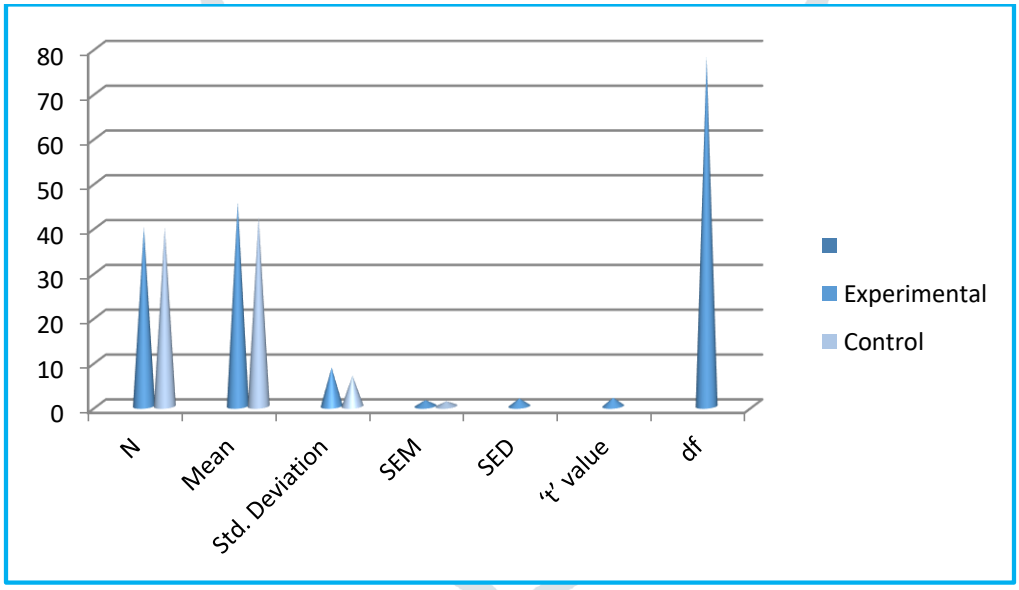

Fig. 5.7

Achievement of experimental and control groups

(Mean, standard deviation, and't' value)

Table and fig. show that the mean achievement scores in commerce of 12th-grade students in the Experimental and Control groups before experimental treatment were 45.55 and 42.23, respectively, with S. D. 8.64 and 6.84, and a 't' value of 1.90, which is unimportant at any stage, suggesting that "there is no significant difference in the achievement of 12th-grade students in the Experimental and Control groups before the experimental treatment." Consequently, the hypothesis Ho1, "There is no significant difference in the achievement of experimental and control group students in Commerce before experimental treatment," is held. The experimental group's mean score (45.55), which is marginally higher than the dependent group's (42.23), suggests that the two groups are not

significantly different, indicating that both groups have similar levels of achievement before the experimental procedure.

- **Comparison of Experimental And Control Group Achievement Scores of 12th Class Students In Commerce (After Experimental Treatment)**

TABLE

Achievement of control group and experimental group (Mean, S. D. and‘t’ value)

Groups	N	Mean	Std. Deviation	SEM	SED	‘t’ value	df	Significance 0.05 level
Experimental Group	40	62.53	7.95	1.26	1.74	7.249	78	Significant
Control Group	40	49.90	7.63	1.21				

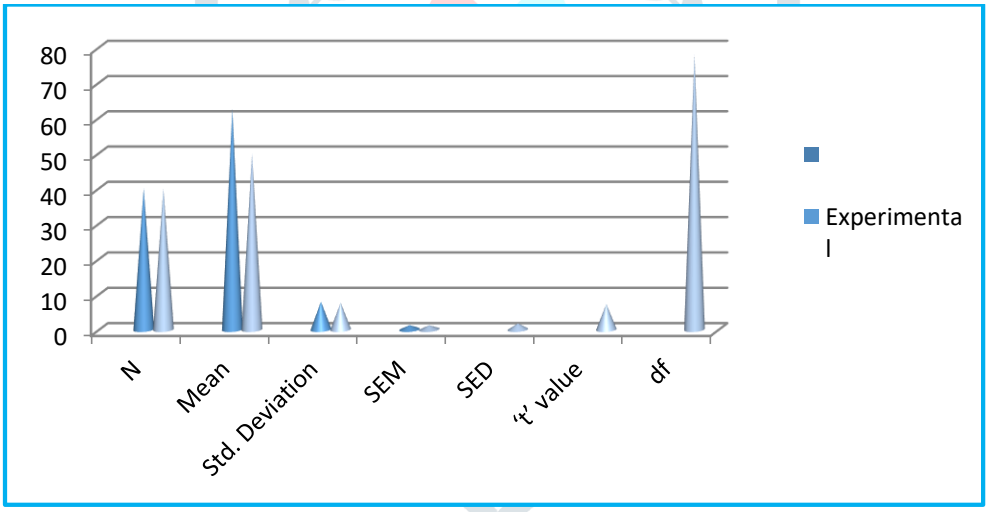

Fig.

Achievement of control group and experimental group (Mean, S. D. and‘t’ value)

Table and fig. show that after experimental treatment, the mean achievement scores in Commerce of Students in the 12th grade in the Experimental and Control groups are 62.53 and 49.90, respectively, indicating a significant difference between the two groups. Their standard deviations are 7.95 and 7.63, respectively, and their ‘t' value is 7.249, which is significant at any level of significance , implying that “there is a significant difference in the achievement of 12th class students in the experiment and control groups after experimental treatment.” It indicates that students in the experimental group performed better in Commerce than students in the control group. Consequently, the hypothesis H_{o2}, **“There exists no significant difference in the achievement of an**

experimental and control group of 12th class students in commerce after experimental treatment" is not retained.

- **Experimental and Control Group of 12th Class Students in Commerce Comparison Of Mean, Standard Deviation, And 'T' Value Of Mean Gain Achievement Scores**

Table

The mean, standard deviation, and't' value of the experimental and control groups' Mean gain achievement

Groups	N	Mean	Std. Deviation	SEM	't' value	Significance 0.05 level
Experimental Group	40	17.13	5.29	.84	9.97	Significance
Control Group	40	7.68	2.80	.44		

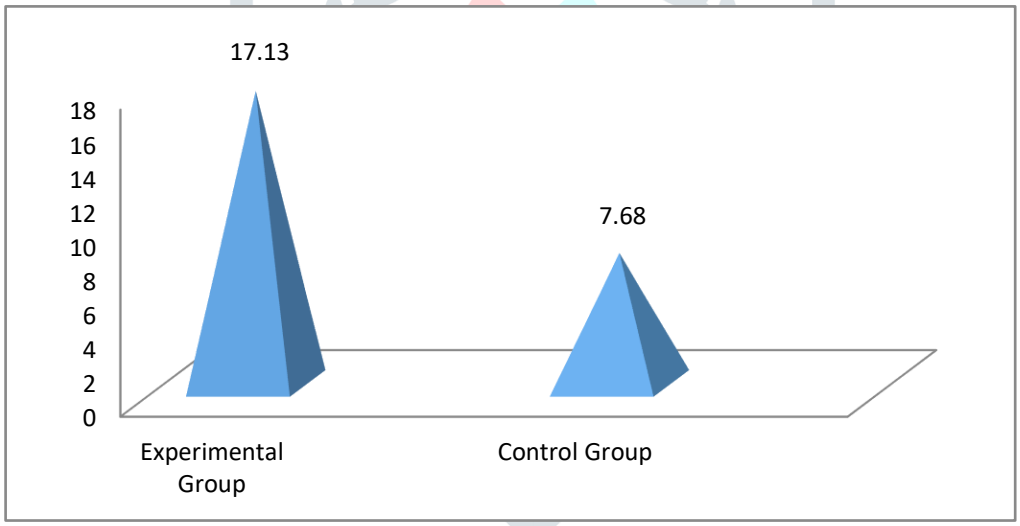

Fig. The mean of the experimental and control groups

Mean gain achievement

Table and Figure show that the experimental group had a higher mean gain score on Commerce performance than the control group. At both levels of significance, the difference in the mean achievement gain score of students in the experimental and control groups is significant as evidenced by the t-value of 9.97. As a result, subjects taught using Information and Communication Technology (ICT) performed significantly better than those taught using the traditional method.

As a consequence, the hypothesis Ho3"There is no significant difference between the mean gain Achievement scores of experimental and control groups of 12th grade Commerce students" is rejected. As a result, it can be

concluded that the use of information and communication technology (ICT) in the classroom is more effective than traditional teaching methods in raising Commerce achievement.

4. DISCUSSION OF RESULT

This research's findings indicate that the post-test achievement means scores of the experimental and control groups vary substantially on the side of the experimental group, founded on their intelligence and socioeconomic status. This means that students who were taught using the ICT method performed significantly better in Commerce than students who were taught using the traditional method. it implied that incorporating ICT into the classroom will help students improve their scores. In terms of academic achievement, there was a significant difference between the mean achievement pre-test scores and post-test scores of the control group .

A significant difference in academic achievement was found between the mean achievement of pre-test scores and post-test scores of the experiment group .

Students who were taught using an ICT-based approach showed significantly higher mean gains in achievement than students who were taught using a conventional method. Students who were taught Commerce using an ICT-based approach reported a significantly higher mean gain in trust in answering test questions than students who were taught Commerce using a conventional method. Information and Communication Technology (ICT) is important in the field of education because of its utility in the teaching-learning process. It provides opportunities for almost all subjects, and it is particularly good for complex matter. The current study examined the effect of Information and Communication Technology (ICT) on Traditional teaching methods.

5. CONCLUSION

The current study shows that moving from a conventional "chalk and talk" teaching method to an ICT-based teaching method not only enriches classroom learning but also increases student achievement significantly. It means that the use of ICT in the classroom has a greater influence on student achievement than the conventional classroom approach. It appears to be more realistic and is well-liked by students. It also helps students of all types perform better by reducing individual differences. The research findings also suggested that ICT can be viewed as a major change factor in education and that there is plenty of room for more research in this field. The use of ICT in the classroom will help to modernize and improve the conventional teaching process. The findings indicated that ICT plays an important role in commerce education and that Educators must have a greater awareness of the circumstances in which they work, Situations, ways, and processes by which ICT can be closely linked to young learners and their classrooms.

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