ACTION RESEARCH ON :

INTRODUCTION OF ICTS IN GOVERNMENT SCHOOLS OF LEH :

UNDERSTANDING ITS EFFECTIVENESS AND ACHIEVEMENTS

The Action Research Conducted & Summitted by :

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ABREVIATION

ICT	Information and Communications Technology
A-VBC	Audio Visual Based Contents
E-content	Electronic Content
TLT	Teaching Learning Tools
DIET	District Institute of Education and Training
HOD	Head of the Department
TLP	Teaching Learning Process
CEO	Chief Education Officer

Introduction

Information and Communication Technology (ICT) has become an integral part of education systems worldwide. The use of ICT in education is expected to improve learning outcomes by enhancing the quality of teaching and learning, increasing access to education, and providing students with new and innovative ways to learn.

The emergence of information and communication technologies ICT has revolutionized the way education is delivered and received ICT enable teaching approach such as e learning and blended learning and flipped classrooms have gained popularity in recent years these teaching approach use technology tools and resources such as videos, podcasts, online quizzes, and interactive simulations to enhance learning outcomes. However, the effectiveness of these teaching approaches is still a subject of debate, with some researchers questioning their impact on students learning outcomes. Therefore, this study is to investigate the impact of ICT enabled teaching approaches on learning outcomes.

Research Objectives

1. To assess the impact of ICT on academic achievements of students.

2. To explore the perceptions of teachers towards the use of ICT in teaching learning processes.

3. To explore the students' attitudes and perceptions towards ICT enable teaching approaches.

4. To check proper usage of ICT Labs and smart classes in the schools.

5. To find out the problems faced by teachers in implementing ICT labs and smart class.

Research Questions

1. What is the importance of ICT in achieving learning objectives?

2. How integration of ICT improves teaching learning process?

3. What are the perceptions of the teachers towards the ICT?

4. What challenges are anticipated in integration of ICT in teaching learning process?

5. Is there any follow up being taken by DIET/CEO in implementing ICT labs in schools?

Conduct of Research:

We have developed a questionnaire consisting of ten ICT based questions and used this questionnaire to conduct survey in 10 Government High Schools of Leh district. The schools are having ICT Labs and are functional as per our knowledge. The details of these schools and the year of establishment are given below.

S.No.	Name of the School	Year of Establishment
1	High School Chushot Gongma	2015
2	High School Thiksay	2018
3	High School Liker	2020
4	High School Chushul	2020
5	High School Lamayuru	2020
6	High School Housing Colony	2016
7	High School Chushot Yokma	2016
8	High School Phyang	2020
9	High School Chumathang	2020
10	High School Hunder	2018

Research Methods

A survey research approach is used for the purpose of study. Schools who have integrated ICT in their TLP is selected for the purpose of study.

55 school teachers who had been through orientation of the use of ICT is selected as teacher respondent for the purpose of the study.

47 students were selected as the student's respondent for this study.

A structured questionnaire is prepared by the guidance of expert and employed on the respondent to elicit their response.

Research Problems

The following major problems we have encountered while conducting this research:

1. We have shared the questionnaire link to more than 10 government high schools of Leh and we have expected to get more responses, but we got only 22 responses from the students and 50 from the teachers.

2. As we were not given prior proper training concerning the execution of a research project, it made our research period lengthy and difficult.

3. Since the high schools are far flung areas, and very far from DIET Leh, we were not able to take all the high schools due to time constraints. If all the high school could have been included then this research could have given more holistic result.

Data Collection and Reporting of Findings

Questions for Students

Q.1 Use of ICT contributes to pupil motivation in learning.

Q.2 The pupils are more attentive when ICT are used in the classes.

Q.3 Use of ICTs can increase learner self-learning behaviors.

Q.4 ICT should be made a compulsory subject.

Q.5 Using ICT in teaching learning method is better than traditional way of teaching.

Q.6 All subject teachers in schools are acquainted with technology.

Q.7 ICT integrated class will bring conceptual clarity.

Q.8 ICT integrated class will make the teaching more interactive and interesting.

Q.9 ICT integrated class will bd equipped the learner with 21st century skills.

Q.10 Pre-loaded e-content tablets issued by education department is very useful in learning.

Questions for Teachers

Q.1 I am satisfied with the pre-loaded e-content.

Q.2 Using ICT in teaching learning process is challenging for teachers.

Q.3 Using ICT in teaching learning process is not a challenging for teachers.

Q.4 Colleagues help in solving the technical problems encounter in teaching learning process.

Q.5 ICT trainings at DIET help the teachers in solving the technical problems.

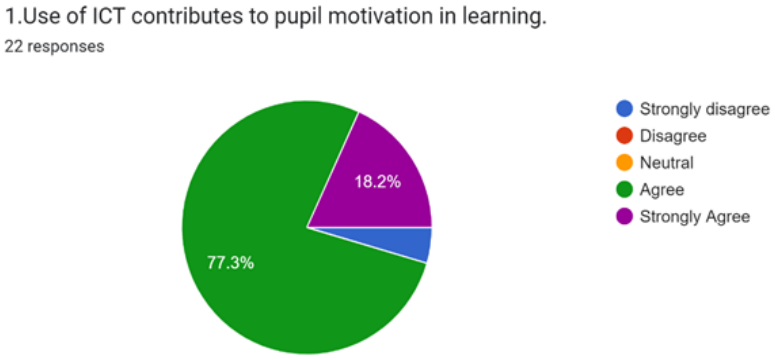
Q.6 ICT integrated teaching have positive impact on students.

Q.7 The vocational teachers are serious in conducting ICT class.

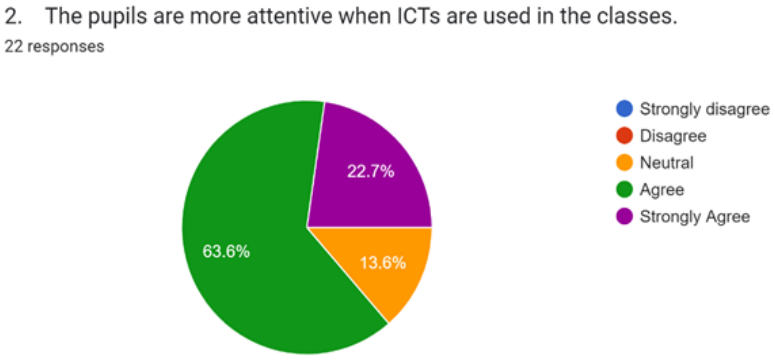
Q.8 ICT helps teachers to identify creative child in educational institutions.

Q.9 ICT helps teachers' fir their personal support (knowledge, attitude, skill)

Q.10 ICT help teachers to motivate students and growing interest in learning.

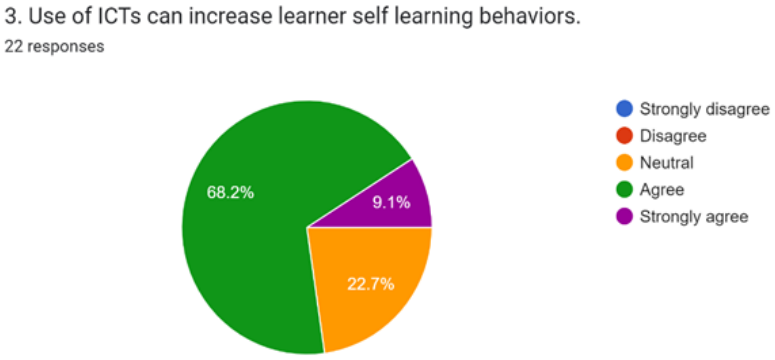


We found through this research that 77.3% students agree that use of ICT motivate them in learning the subjects. The findings show that the use of ICT in teaching and learning has a significant positive impact on student motivation, such as increasing students' attitude to learn, improving classroom behaviour, relate to real world situation and provide better performance in learning outcome. ICT proves that students who use latest technology in learning process, understands the concepts better and are motivated and curious to learn. This also increase their self- confidence and self-esteem.



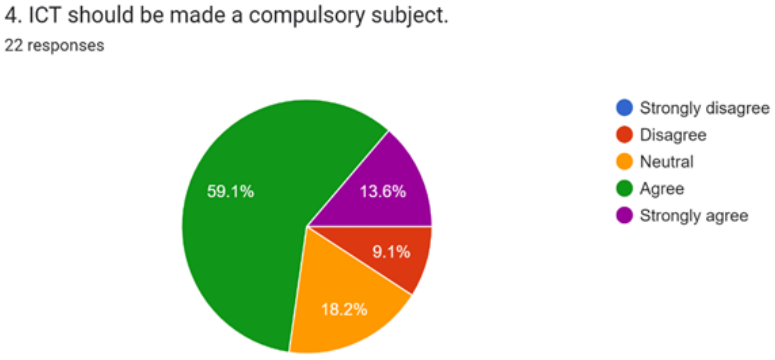
Among 22 responses, 63.6% and 22.7% of students fall under 'agree' and 'strongly agree'. This indicates that use of technology enhances sustained attention in the classroom. ICT allow for a higher quality lesson through collaboration with teachers in planning and preparing resources *(Ofsted, 2002)*. Students learn new skills: analytical, including improvements in reading comprehension. It is also confirmed that many students found learning in a technology-enhanced setting more stimulating and much better than in a traditional classroom environment *(Pedretti and Mayer-Smith 1998)*.

When students are taught using simulation and animated videos, they feel real world experience which creates interest, increase attention and develop critical thinking among them.



In studies that rely largely on self-reporting, most students feel that using ICTs makes them more effective learners. This may be due to the satisfaction felt by students when they use tools with which they are comfortable. ". students see the use of relevancy-based digital tools, content and resources as a key to driving learning productivity, not just about engaging students in learning" *(Speak Up, 2009).*

It is very clear from the response of the students as 68.2% students are agreed,22.7% neutral and 9.1% are strongly agreed related to the statement that the use of ICTs can increase learner self-learning behaviors.



Regarding the making of ICT as a compulsory subject in the school.59.1% students agree,18.2% are neutral,13.6% strongly agree and only 9.1% disagree.

ICT is integrated in almost all streams: science, mathematics, Humanities, language etc., so if this become compulsory not optional then students will be able to understand and comprehend other subjects in a better way.

Use of ICT plays a vital role in modern education scenario. Students can learn at their own

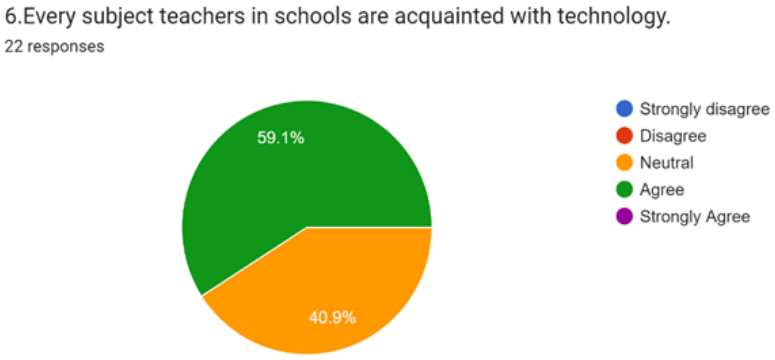
pace by joining YouTube classes, using educational apps, attaining online classes. ***SWAYAM, DIKSHA, NISHTHA, ePathshala, PMeVIDYA*** and ***NROER*** are some of the apps and portals run by Ministry of Education.

The precursor Royal Society report in 2012 titled 'Shut down or restart? The way forward for computing in UK schools had a core recommendation to ensure 'technical resources should be available in all schools to support the teaching of computer'. One of the achievements of the last Labour government was to ensure that all children did not leave education without the ability to read, write and understand basic math and science. If we are to truly 'Level Up' we need to make sure Computing is treated similarly.

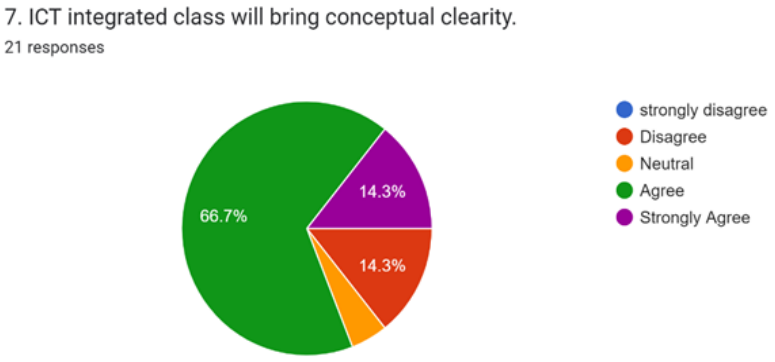
https://royalsociety.org/~/media/education/computing-in-schools/2012-01-12-computing-in-schools.pdf

Many teachers use ICT to support traditional learning methods, for example, information retrieval in which students are 'passive learners of knowledge instead of 'active producers able to take part in the learning process. In a document entitled teaching and learning with ICT, G. Galea (2002) explains how ICT can promote teaching and learning. According to her there are two main reasons behind increasing the use of ICT in education in UK. Firstly, ICT can change the lessons' pace: she stated that children in modern society need to develop sufficient potentials and skills that enable them to take full advantage from the new opportunities that ICT offer. Second, there are groundswells of interest of academic research in UK in how technological tools can enhance the quality of teaching and learning in schools, and so help learners to achieve better outcomes.

When we asked this question to the students, It came to know from their response that among the 22 responses 68.2% agree,18.2% are neutral, 9.1% strongly agree with the using of ICTs as a teaching learning tools than the traditional way of teaching. ICT based pedagogy makes learning more interesting, attractive, simulating and engaging.

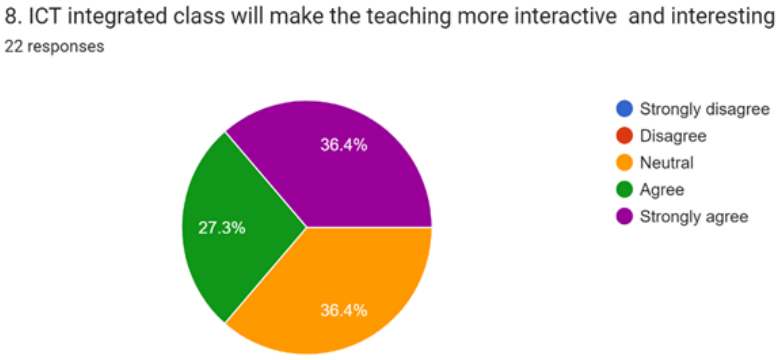


ICT can improve teaching by enhancing an already practiced knowledge and introducing new ways of teaching and learning. Transforming teaching is more difficult to achieve. "Changes that take full advantage of ICT will only happen slowly over time, and only if teachers continue to experiment with new approaches." (Underwood 2006) From the above responses 59.1% are agreed ,40.9% are neutral regarding the statement that every subject teacher in school are acquainted with the technology. "ICT generally has a positive impact on teaching and learning situations" (Ramboll, 2006).so every teacher needs to learn the use of technology to make their class more interesting.

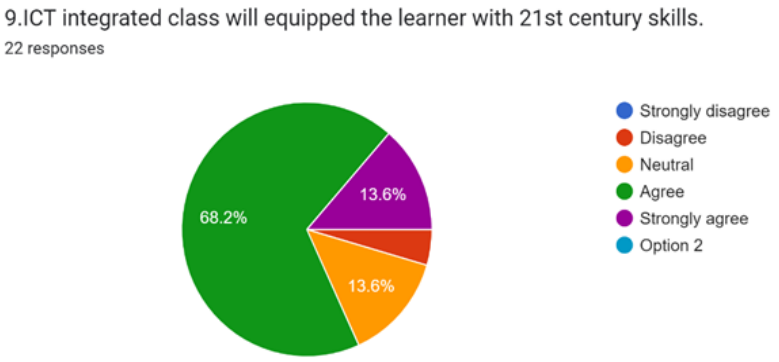


A digital classroom, or ***"smart classroom,"*** is a modernised version of a school that uses various teaching methods to increase effectiveness. With the aid of these strategies, students are able to fully comprehend the concepts being taught and discover practical applications for them. *(joel vas)*

Students are clearing their concept when they are attending ICT class.66.7% students are agreed to the statement,14.3% are disagreed,14.3 % are strongly agreed.

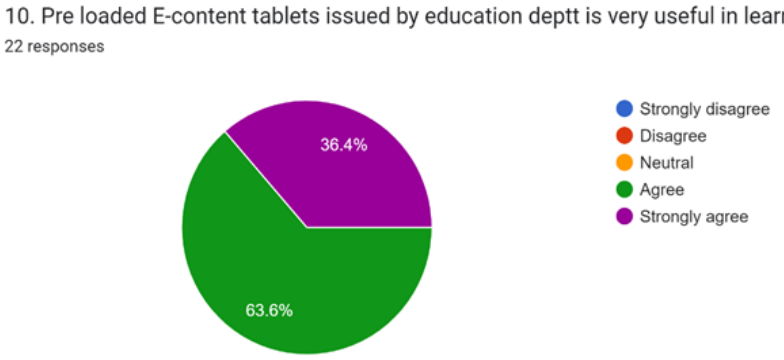


Students' cognitive skills become sharper when interacting with the teacher and study tools. This interactive learning allows them to understand the concepts in depth and helps them retain the same long-term. Among the responses 36.4% are strongly agreed to that the ICT integrated class will make the teaching learning more interactive and interesting.



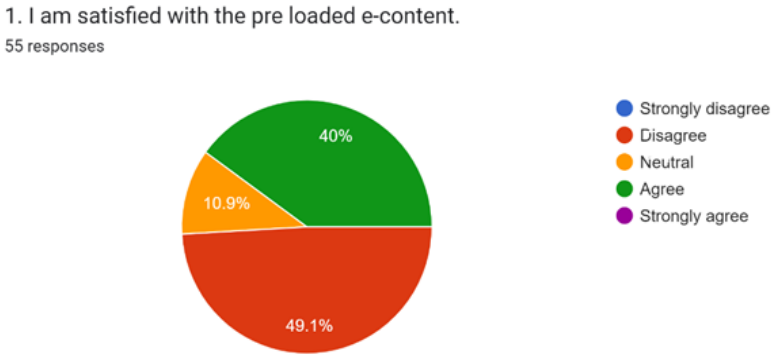
21st Century is the era, where we are in now, is a time of freedom and technological advancement. 21st century people are the first ones to experience a whole new digital world. To inculcate required knowledge and skills in students effectively, in all over the world, teachers and educational systems are using ICT integrated teaching and learning process. 21st century teacher must use multimodal content, hands-on training, personal and techno-savvy in an interactive, collaborative and non-linear method of teaching. 21st century learners get information from various ICT resources.

By attending ICT class, students equipped themselves with 21st century skills. From the responses 68.2% students are agreed,13.6% strongly agreed,13.6% are neutral and only 5% are disagreed.



Learning is not restricted within the boundary of classroom. learning is possible everywhere, by anyone, at any time. "E -content is a very powerful tool of education.it is valuable to the learners, it is the latest method of instruction that has attracted more attention to gather with the concept of models" *(Balachandran et. All 2019).*

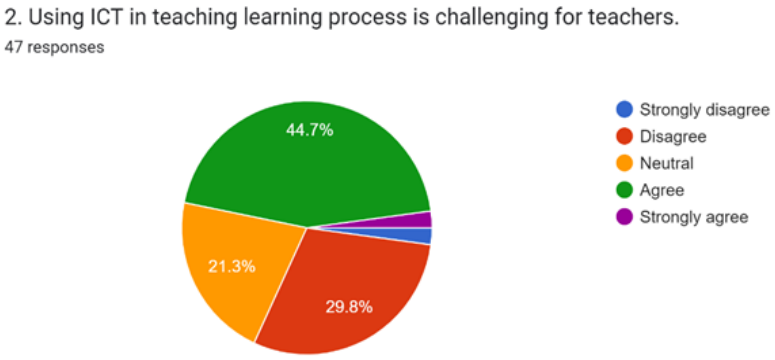
we found through this research that the preloaded e-content tablets which was issued by the education department to the students are very useful in learning. As the 63.6% students agree,36.4% strongly agree with the above statement.



Holmes and Gardner (2006) point out that e-learning provide access to resources that promotes learning on an anyplace, anytime basis. E content is the valuable resource for development of information rich society where everyone, irrespective of cast, religion, race, region and gender bias are empowered to create, receive share and utilize information and knowledge for their economic, social, cultural and political upliftment and development (Dr. Urvashi Mishra1, Dr. Sarjoo Patel, Ms. Khyati Doshi) Vol-2 Issue-1 2017 IJARIIE-ISSN(O)-2395-4396

e-content based teaching in today's education system is important but as per the responses received from teachers only 40 % of them agree that pre-loaded e-content is essential. This shows that most of the teachers are not acquainted or untrained in this field. So, we concluded

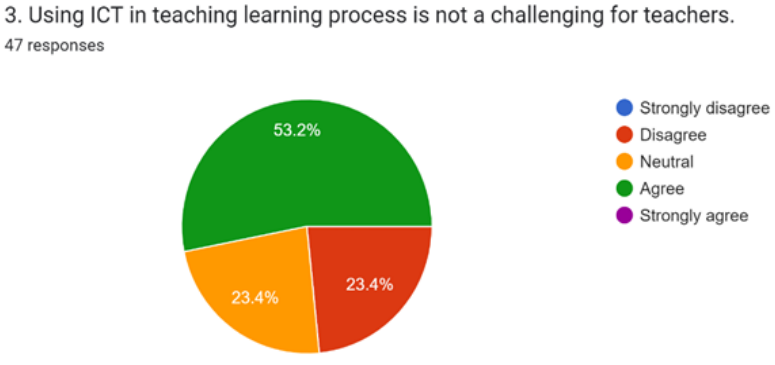
that more capacity building training especially ICT based training should be imparted to them so as to bring them at par with the teachers of other states who are well verse with digital based teaching. The study shows 49.1% of them disagree with the statement. It indicates some teachers who are at the verge of retirement are afraid of using ICT as they are used to traditional way of teaching and sudden shift to technology-based teaching makes them uncomfortable in using gadgets and internet.



Salehi and Salehi (2012) had cautioned that though technology has limitless access opportunities to information, it may pose real danger if teachers lack ICT skills.

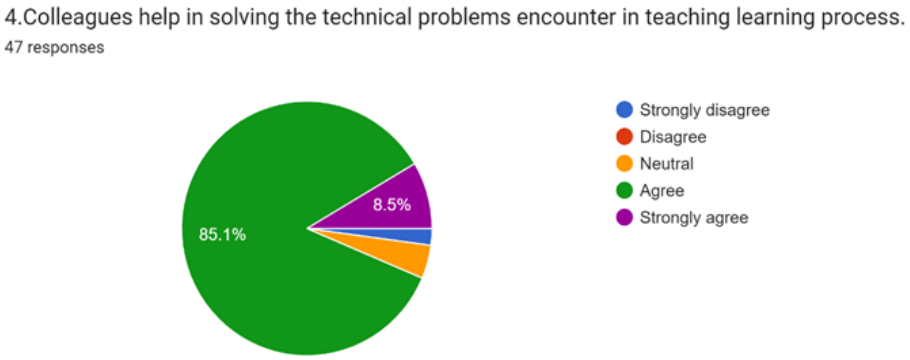
A major obstacle in the use of ICT in rural education is the lack of knowledge and skills. There is dearth of dynamic teachers formally trained in ICT. Moreover, there is hardly any quality training imparted on a regular basis to teachers involved in ICT education. https://digitallearning.eletsonline.com/2020/10/teaching-and-learning-with-ict-tools-issues-and-challenges/

Among the responses 44.7% teachers agree, this indicates that they are not properly trained or they have not put efforts to adopt the new teaching methods or ICT based pedagogies.29.8% disagree that using of ICT in teaching learning process is challenging. This shows that the teachers who have been recruited in the recent years are computer literate and are aware of importance of technology. Some teachers are willing to adopt new changes and go with the flow.

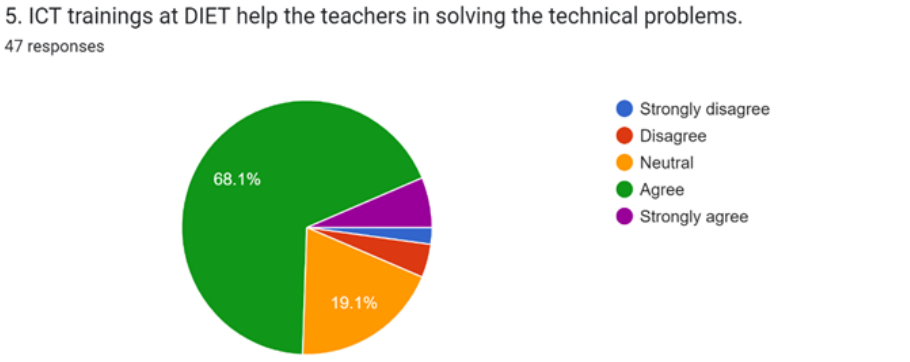


53.2% teachers are agreed with the statement that using ICT in teaching learning process is not a challenging for them.23.4% are neutral ,23.4% are disagree.

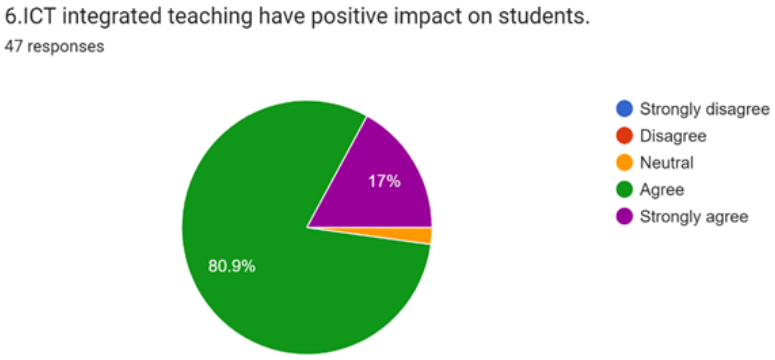
The finding confirms Salehi and Salehi (2012) finding that revealed that teachers had strong desire to use ICTs in the classroom but prevented by barriers such as insufficient technical support, little access to internet and ICTs. The study by Chasingo, et al. (2020) exposed that teachers had a positive attitude towards the adoption of technologies and ready to integrate ICTs in their teaching, but they lacked the requisite ICT skills. ...



Regarding the colleagues help in solving the technical problems encounter in teaching learning process.85.1% teachers are agreed,8.5% are strongly agreed.

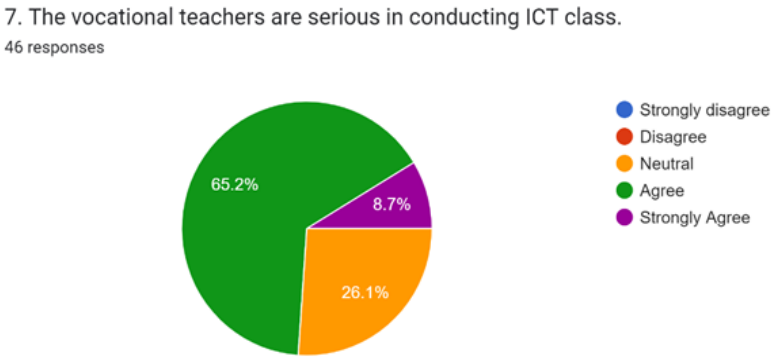


The data shows that 68.1% teachers found ICT based training at DIET was useful for them. This encourages us to conduct better and more such training in future covering maximum teachers of government schools. So that they are more quipped with technical skills and can teach better in their classes.



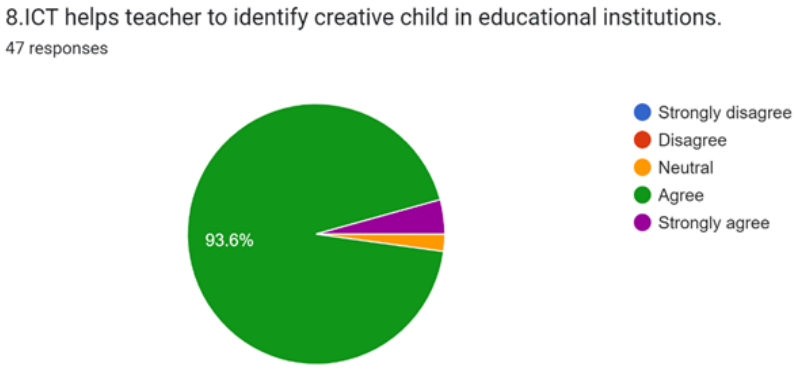
Many pupils consider ICT tools very helpful in that it helps them to do assignments teachers see that ICT enables students with special needs or difficulties. It also helps to reduce the social disparities between pupils, since they work in teams in order to achieve a given task. Students also assume responsibilities when they use ICT to organize their work through digital portfolios or projects. In addition, the study showed that ICT has significant impact on teachers and teaching processes.

80.9% teachers are agreed with the statement that ICT integrated teaching have positive impact on students. The data shows that teachers can actually realize or see that use of ICT in teaching – Learning process has positive impact on students as compare to traditional teaching method. In this students are not only passive learners but they are active learners by engaging themselves in gamified learning and simulation/AR/VR based learning.

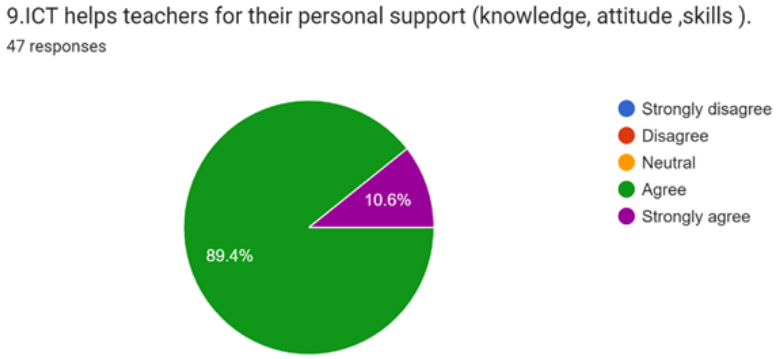


The vocational teachers are serious in conducting ICT class. I came to know that 65.2% teachers are agreed,26.1 are neutral and 8.7 % are strongly agreed. Most of the schools are having ICT class but are not having a dedicated techer to teach computer to students.

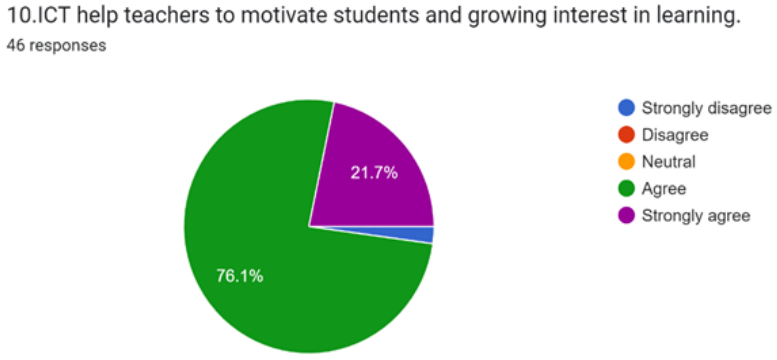
We suggest that every subject teacher should have basic computer knowledge so that they can integrate ICT while teaching their own subjects so as to use ICT Lab properly and frequently.



Among the responses, 93.6% teachers are agreed that ICT helps in identifying creativity in children. ICT enhance students' creativity and interest by providing various tools like gamified quiz, interactive questions (using H5P software), stop motion animation, infographics, mentimeter, UVE software and many more apps based software.



ICT has indeed helped teachers in improving their teaching skills. It plays a major role in preparing lesson plan and delivering lecture in classroom in an effective and engaging way. Through distance and e-learning, teachers are improving their teaching skills by adopting the new technology-based pedagogies and student-centered learning skills.



76.1% agree with the statement that ICT help teachers to motivate students and growing interest in learning and 21.7% strongly agree on the same statement.

In todays' digital world, students are more inclined to use of mobiles and other gadgets. So, students are motivated if they are taught using animated videos, simulation, ICT labs, smart board and other A-V based contents.

Conclusion

Till date ICT labs have been introduced in 50 schools, Smart class in 19 schools and Atal Tinkering labs in 4 schools but the school of Leh district are not able to implement these facilities properly due to lack of trained ICT teachers. We suggest to train at least one teacher in each school so as to serve the purpose of these facilities.

To integrate ICTs in education of the child and to improve learning, the education department has initiated several steps like the distribution of free tablets under mission "Yontab" , Digi Lab and "Mobile Science Lab" to various schools of Leh district.

Integration of ICT based and introduction of smart class and ICT based teaching should be introduced and adopted in all schools so as to bridge the learning gap.

According to the data received from the students and teacher, it is evident that most of the teachers are interested to adopt ICT based pedagogies and tools like digital white board presentation software, animated videos etc. to create and delivered dynamic lessons.

In the same way most of the students feel that learning by using ICT tools such as computers, tablets and software can enhance the process through visual aids, interactive activities and multimedia resources. This can also improve student's attention, engagement and understanding.

To sum up ICT can help to transform the education system by providing more opportunities for collaboration, commination and personalize learning while also facilitating access to quality educational resources.

References

1. Internet
2. Chief Education Office, Leh
3. Schools selected for the survey.
4. (Ofsted, 2002).
5. (Pedretti and Mayer-Smith 1998).
6. (Balachandran et. All 2019).
7. Chasingo, et al. (2020)

NOTES

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