Research Article

Role of ICT in Improving Quality of Education: Perception of Head Teachers of Secondary Schools of Kamrup (Metro) District, Assam

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Abstract

Digital dominance has been making significant differences in human life since the 1990s. We are now deeply influenced by this digital habitat in the 21st century, be it education or any other field of life. The use of ICT in teaching and learning has been highly recommended and greatly implemented in our education systems in the recent past. The present study has been conducted to gauge the perception of head teachers of secondary schools on the role of ICT in improving the quality of education. The descriptive survey approach has been used to conduct the study. A sample of 50 head teachers, selected randomly, was chosen from the provincialised secondary schools of Kamrup (Metro) district of Assam. Opinionnaire prepared on a 5-point Likert-type Scale, and an open-ended questionnaire were used as tools. Frequency and percentage were used as statistical techniques to analyse quantitative data, and content analysis was done to analyse the qualitative data. The study revealed that ICT helps in enhancing the teaching-learning experiences, makes the teaching-learning process interesting, promotes self-learning, promotes collaborative exercises amongst teachers, promotes innovations, develops the skill of critical thinking, provides exposure to vocational skills, promotes active learning, etc among head teachers, teachers and students. However, some challenges were also perceived, such as lack of adequate infrastructural facilities, lack of sufficient numbers of properly trained teachers, etc.

Keywords: Information and communication technology, quality, perception, head teachers

Introduction

A properly decoded and arranged data can be considered as information and the exchange of information through different ways as communication. The success of the teaching-learning process, to a great extent, depends on proper communication between the sender and the receiver of the information. Due to advancements in the field of Information and Communication Technology (ICT) in the present era, the sharing of information has become rapid due to its accessibility on our fingertips. ICT combines both the information technology and the communications technology. During Covid pandemic the online mode of teaching-learning was adopted by most of the teachers due to its suitability in different ways. Quality in education is related to a high degree of personnel interaction of a teacher with learners. In the modern age of technology, ICT has proven to be an integral part of the teaching-

learning process. ICT contains radio, television, mobile phones, computers, internet, satellite, etc (Choudhary, 2020). All the tools which are used for the better processing of information and communication are included in ICT. The representation of information in a rich way can change the perception and understanding of the context of the teachers and learners, and ICT can also provide support for innovations in education. ICT provides a platform for teachers to professional development as per the demand of the time. ICT can also improve the quality of education in various ways (Gupta, 2018). ICT earmarks innovative dimensions of the human mind, contributes to producing a new global culture and opens up a wide range of perspectives in their use in improving the quality of education. In improving the quality of education, ICT plays a significant role as it promotes the active participation of both teachers and learners in the teaching-learning process (Sekhar, 2016). Tremendous changes are being witnessed to take place in the field of education with the introduction and, later, the wide use of technology in education, mobile phones, digital libraries, e-Books, internet, etc. Enhancing critical thinking and smart decision-making ability in the educational profession seems to be augmented by the wide field of ICT at present (Sharma, 2019). The smartness of a teacher is reflected in the smart use of ICT in the process of education. Due to the ability to integrate multiple media into simple educational applications and the flexibility of use of ICT at present, it is proving to be more powerful than the technologies used before. New and fundamentally different options in education have been opened as a result of the adoption of ICT in education (Sharma, 2021). Integration of technology in teaching-learning provides an enhanced learning environment for the students and also provides scope for the teachers to improve their teaching by playing the role of facilitator of learning, knowledge manager, designer of curriculum, trainer and so on and so forth. The teaching profession at present is shifting towards being more student-centred and creating a more interactive learning environment (Malhotra, 2014).

ICT initiatives in the schools of Assam

To achieve the vision of the digital India campaign, the Government of Assam also recognised the importance of educating teachers in the use of ICT as well as the students in a holistic manner. Some of the significant ICT initiatives in the schools of Assam are Computer-Aided Learning in Elementary Schools, Information and Communication Technology in Schools, Rajiv Gandhi Computer Literacy Programme with the purpose of providing computer education to students of Government schools free of cost, introduction to Integrated Approach to Technology in Education to improve teaching-learning process using technology, ICT Integrated Subject Teacher Forum to create digital learning resources and network, implementation of smart classroom in Govt./Prov. Secondary/ Hr. Secondary Schools across Assam to transform teaching and learning in more attractive and meaningful way with the help of ICT, implementation of DIKSHA (Digital Infrastructure for Knowledge Sharing), Assam for creating and exchanging e-resources to bring qualitative changes in teaching-learning process, implementation of the selected energized textbook (QR code incorporated) at elementary, secondary and higher secondary level to help students and teachers to access digital content by scanning the QR code, Swayam Prabha DTH and Door Darshan Program to streamline all the academic efforts of the state and bridge the academic gap of students in the line of academic calendar 2020, PM e-Vidya One Class One Channel, etc.

Besides these, during the COVID-19 pandemic, to continue with the process of teaching-learning, different online initiatives were taken up. Some of such initiatives were imparting lessons in different subjects for students of Classes IX and X, engaging subject experts through 'Bidyarthee Anusthan' of All India Radio, Guwahati, Silchar, Kokrajhar etc, followed by interactive sessions between the subject experts and the students, extending support to different TV channels in imparting the live classes in different subjects, taking up online classes in different subjects, giving assignments to the students in any convenient way to make the assignments available to the maximum number of students, developing e-learning app for the benefit of the students so that teachers can upload their videos in different subjects, introducing YouTube channel etc.

Review of related literature

Nchunge, Sakwa and Mwangi (2012) in their study revealed that the pace of adopting ICT in public and private secondary schools was slow and the change in the perception is delayed due to insufficient technical and psychological preparedness and insufficient policy guidelines. The study recommends more investment to improve and also to equip the schools with facilities related to training on ICT for teachers and students.

Mumcu, Usluei (2013) conducted a study to develop a scale to determine the perceptions of teachers related to levels of ICT implementation based on levels of technology implementation framework, and the study suggested defining the integration of ICT into teaching-learning process by the teachers in five levels including organisation of activities to develop the basic ICT skills of students, preparing lesson plans, developing higher order thinking skills of students, communication among teachers, students and experts by means of networks beyond the four walls of a classroom, use of ICT resources and application by the students in solving problems of the real world, etc.

Charles and Issifu (2015) in their study found that the usage of ICT by students to support their learning was low, and they used ICT to contact peers through collaborative and inquiry-based learning and also revealed that the perception of students' use of ICT was positive and the value, expectancy of success and the cost perceived by the students were high. Differences were also found between male and female students on perceived value and cost related to ICT usage.

Gebremedhin, Fenta (2015) in their study found that due to a shortage of resources majority of the teachers were not able to use hardware in teaching-learning process but the teachers were found to have strong positive perception to use ICT in the teaching-learning process. The study also revealed that the encouragement of the use of ICT increases the perception of teachers in the integration of ICT in the teaching-learning process. Lack of technical knowledge on the part of the teachers and shortage of resources were pointed out as barriers by the respondents in the implementation of technology as revealed by the study.

Verma, Khaliq and Kumar (2016) in their study mention that teaching of computer science and the absence of curriculum for computer science at the primary level are some of the challenges related to ICT implementation in education. The study concludes that in solving some complex problems related to the real world, scientific principles of computer science can be applied. The students should be motivated to use computer science as a tool in solving problems in their disciplines which will contribute in improving the quality of education and research, according to the study.

Satveer (2017) in his study, expressed that the shortage of infrastructural facilities to enable the use of ICT in school education is a serious matter of concern in rural areas and resistance to implementing the technological change by a section of the teaching community, shortage of power supply, shortage of faculty member to teach computer, faculty members with lack of computer knowledge, lack of staff for maintenance and support for the equipments, etc. are some of the challenges in implementing ICT in rural areas.

Suniya, Lhungdim (2017) in their study found the students to have a positive attitude towards ICT. A significant difference in attitude was also found in the study between the students of government and private secondary schools. No significant difference was found in the attitude of students on ICT with respect to gender and race as revealed by the study. The study suggested making students more aware of the benefits of ICT integration in education.

Gupta (2018) reveals that ICT-based projects significantly influence the framing of objectives, preparing and processing different lesson plans, selecting and presenting contents and evaluating and selecting methods of teaching. Unfavourable attitudes developed among teachers and students towards ICT programmes due to the lack of infrastructural and training facilities as revealed by the study. The study suggests flexibility in the framework of syllabus and curriculum to have maximum use of ICT, arrangement of proper training and support facilities to use ICT in education. The study concludes that the process of education is significantly affected by ICT-based projects.

Chakraborty, Dhara & Santa (2018) found in their study that the most notable factor having an impact on the effectiveness of ICT is the cost of ICT. In instructing, ICT can support a few plans of action or procedure identified with educating and learning through the transmission of data and assistance of information and ICT also changes the job of the educators in some cases.

Sharma (2019) in the study conducted on the use of ICT in enhancing teaching-learning process in professional courses mentions that the exposure provided by the ICT in particular has compelled the institutions of professional education to enhance the ability of critical thinking and decision making smartly. The study found that in enhancing the teaching-learning process in the professional course ICT is playing a significant role as it helps in introducing innovative ways of teaching, learning and training and the use of ICT also helps the learners in placement in local as well as international market; as use of ICT helps in producing skilled and competent professional manpower.

Choudhary (2020) expressed in the study that ICT plays a significant role in social development; as it improves the teaching-learning process by providing an atmosphere of learning in which the transmission of knowledge is faster and in some cases simpler also and for the advancement of education ICT is considered as an efficient method as it provides different facilities through online mode in learning, evaluating, reading books, paying fees, appearing in examination, etc.

Sharma (2021) in the study on challenges and barriers in integrating ICT in Indian schools and the role of a teacher mentions that lack of proper infrastructural facilities, lack of sufficient funds, lack of trained teachers, mental blocks in some students and teachers in using ICT who consider it as a difficult task are some of the challenges in implementing ICT integrated education.

The review of the related studies helped the researcher in framing the objectives and research questions, developing

the design of the research, developing the research tools and also selecting techniques for analysing the data.

Objectives of the study

1. To study the perception of head teachers about the facilitative and creative role played by ICT in the efficacy of teachers' and learners' roles in learning; and
2. To study the challenges faced by the head teachers of secondary schools in implementing ICT in the teaching-learning process to improve the quality of education.

Research questions

1. What is the perception of head teachers about the facilitative and creative role played by ICT in the efficacy of teachers and learners' role in learning?
2. What are the challenges faced by the head teachers of secondary schools in implementing ICT in the teaching-learning process?

Methodology of the study

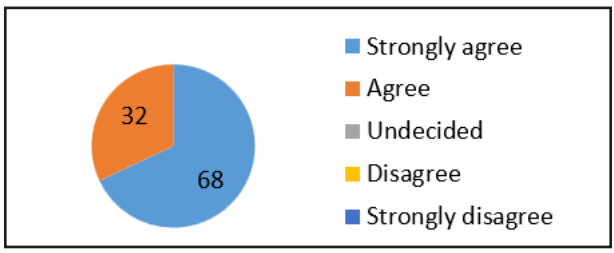
The descriptive survey method was used in the present study. A sample of 50 head teachers was selected randomly for the study from the provincialised secondary schools of Kamrup (Metro) district of Assam. Both primary and secondary data related to the study were used in the study. Opinionnaire and open-ended questionnaires were used as tools to collect data. The opinionnaire was prepared on a 5-point Likert-type scale with five categories of responses ranging from strongly agree (S.A.), agree (A.), undecided (Un.), disagree (D.A.) to strongly disagree (S.D.). To determine the reliability of the oppinionnaire, the test-retest method was used. The reliability coefficient was found to be 0.73. According to the comments and suggestions received from the experts in the related field, the content validity of the tools was determined. Both qualitative and quantitative data analysis techniques were used in the study. Frequency and percentage were used as statistical techniques to analyse and interpret quantitative data. To present the data in a graphic way a Pie diagram was used.

Results and discussion

Table-1: ICT enhances the teaching-learning experiences (Statement 1)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	34	16	0	0	0	50
Percentage	68	32	0	0	0	100

Graph-1: ICT enhances the teaching-learning experiences (Statement 1)

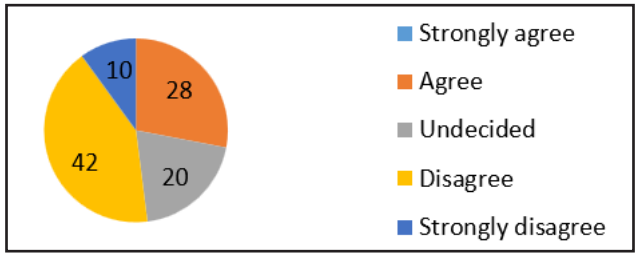


On average, ICT enhances the teaching-learning experiences as 68 per cent of respondents strongly agreed and 32 per cent of them agreed as shown in Table-1 and in the Pie diagram (Graph-1). This indicates that according to most of the respondents the use of ICT helps in enhancing the teaching-learning experiences.

Table-2: The school has adequate access to ICT tools (Statement 2)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	0	14	10	21	5	50
Percentage	0	28	20	42	10	100

Graph-2: The school has adequate access to ICT tools (Statement 2)

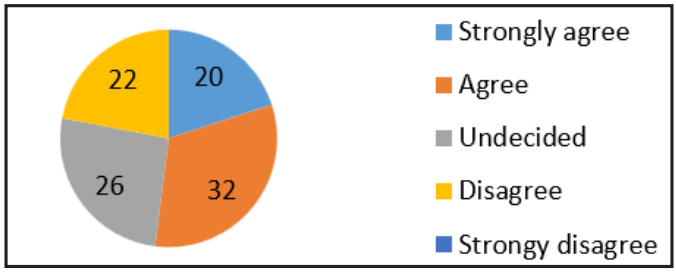


The data shown in Table-2 and Graph-2 indicate, according to 28 per cent of the respondents, the schools have adequate ICT tools, whereas according to 52 per cent of the respondents, the schools lack adequate ICT tools.

Table-3: Teachers are well versed in classroom transaction using ICT (Statement 3)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	10	16	13	11	0	50
Percentage	20	32	26	22	0	100

Graph-3: Teachers are well versed in classroom transaction using ICT (Statement 3)

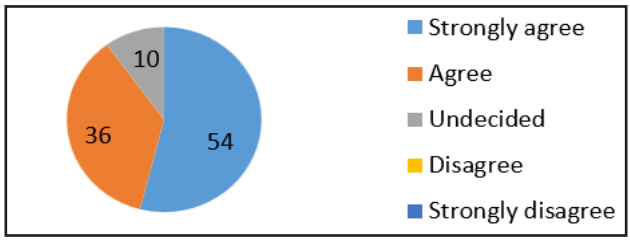


The data in Table-3 and Graph-3 depict that nearly half of the teachers are well-versed in using ICT.

Table-4: Students find classroom delivery through ICT interesting (Statement 4)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	27	18	5	0	0	50
Percentage	54	36	10	0	0	100

Graph-4: Students find classroom delivery through ICT interesting (Statement 4)

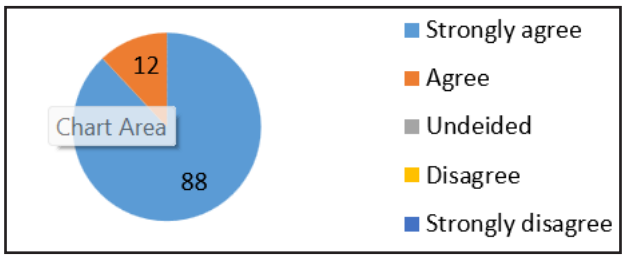


54 per cent of the respondents strongly agreed and 36 per cent of the respondents agreed that the students find classroom delivery through ICT interesting.

Table-5: ICT makes the process of communication more effective (Statement 5)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	44	6	0	0	0	50
Percentage	88	12	0	0	0	100

Graph-5: ICT makes the process of communication more effective (Statement 5)

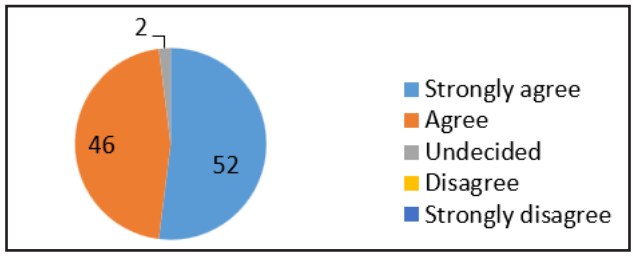


All the respondents (88 per cent strongly agreed and 12 per cent agreed) agreed that ICT makes the process of communication more effective, which are very vivid in Table-5 and Graph-5 respectively.

Table-6: ICT promotes self-learning (Statement 6)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	26	23	1	0	0	50
Percentage	52	46	2	0	0	100

Graph-6: ICT promotes self-learning (Statement 6)

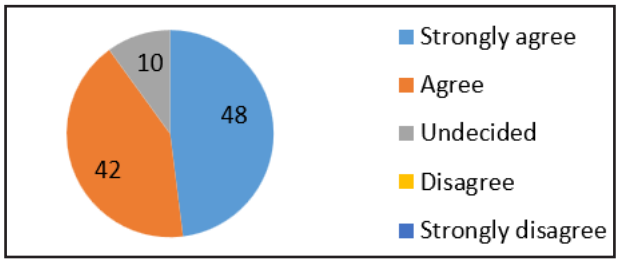


Almost all the respondents (52 per cent agreed strongly and 46 per cent agreed) agreed that the use of ICT promotes self-learning among teachers and students, which is reflected in Table-6 and Graph-6.

Table-7: ICT promotes collaborative exercise amongst teachers (Statement 7)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	24	21	5	0	0	50
Percentage	48	42	10	0	0	100

Graph-7: ICT promotes collaborative exercise amongst teachers (Statement 7)

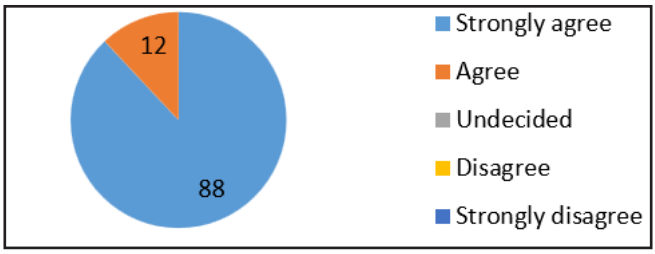


On the statement 'ICT promotes collaborative exercise among teachers', the majority of the respondents (48 per cent strongly agreed and 42 per cent agreed) agreed to it.

Table-8: ICT promotes innovations amongst teachers (Statement 8)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	44	6	0	0	0	50
Percentage	88	12	0	0	0	100

Graph-8: ICT promotes innovations amongst teachers (Statement 8)

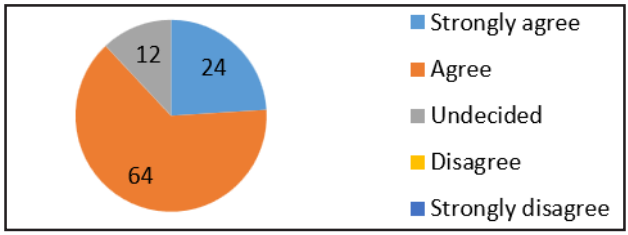


Almost all the respondents agreed that ICT promotes innovation among teachers, as is evident from theTable-8 and Graph-8 respectively.

Table-9 : ICT tools are effective in sharing teaching-learning materials (Statement 9)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	12	32	6	0	0	50
Percentage	24	64	12	0	0	100

Graph-9: ICT tools are effective in sharing teaching-learning materials (Statement 9)



From the Table-9 and the Graph-9, it is evident that ICT tools are effective in sharing teaching-learning materials.

Table-10: Pool of multimedia content enhances the uniformity of classroom interaction in teaching-learning (Statement 10)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	15	24	11	0	0	50
Percentage	30	48	22	0	0	100

Graph-10: Pool of multimedia content enhances the uniformity of classroom interaction in teaching-learning ((Statement 10)

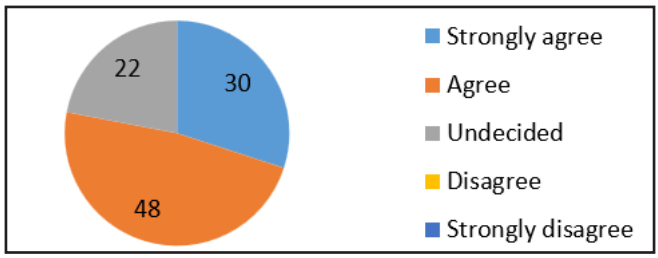
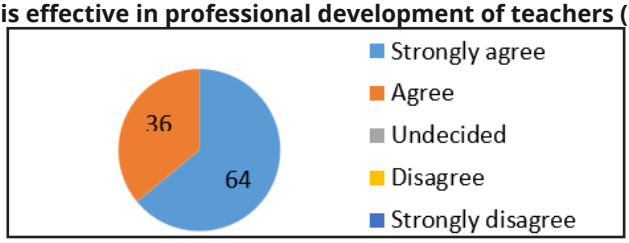


Table-10 and the Graph-10 that the pool of multimedia content enhances the uniformity of classroom interaction in teaching-learning to a great extent (78 per cent of respondents).

Table-11: ICT is effective in professional development of teachers (Statement 11)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	32	18	0	0	0	50
Percentage	64	36	0	0	0	100

Graph-11: ICT is effective in professional development of teachers (Statement 11)

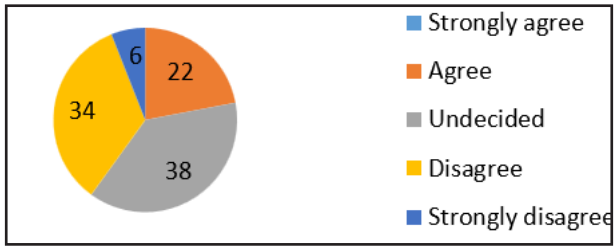


From the Table-11 and the Graph-11 it is clear that according to the head teachers, ICT is effective in the professional development of the teachers.

Table-12: There is sufficient provision of providing training to the teachers on the use of ICT in education (Statement 12)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	0	11	19	17	3	50
Percentage	0	22	38	34	6	100

Graph-12: There is sufficient provision of providing training to the teachers on the use of ICT in education (Statement 12)

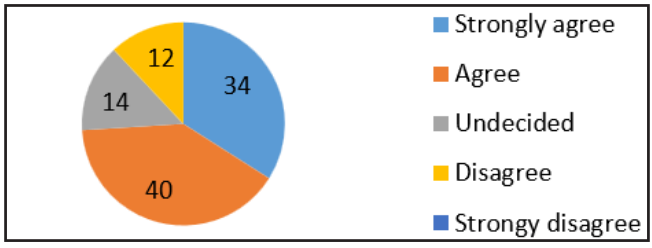


From the Table-12 and the Graph-12 it is evident that sufficient provision of providing training to the teachers on the use of ICT in education is lacking according to 40 per cent of the respondents.

Table-13: ICT develops the skills leading to critical thinking (Statement 13)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	17	20	7	6	0	50
Percentage	34	40	14	12	0	100

Graph-13: ICT develops the skills leading to critical thinking (Statement 13)

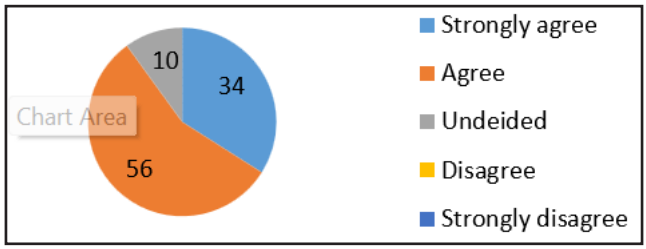


ICT develops the skills leading to critical thinking. A good number of respondents (40 per cent agreed and 34 per cent strongly agreed) agreed to it, as indicated in the Table-13 and Graph-13 respectively.

Table-14: Use of ICT improves students' motivation (Statement 14)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	17	28	5	0	0	50
Percentage	34	56	10	0	0	100

Graph-14: Use of ICT improves students' motivation (Statement 14)

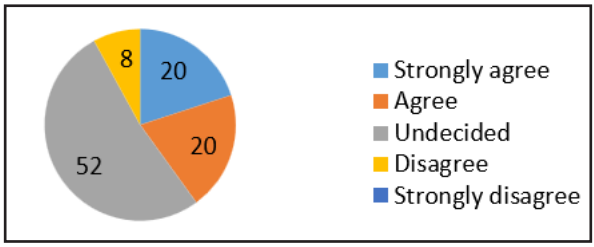


The Majority of the respondents (56 per cent agreed and 34 per cent strongly agreed) confirm that use of ICT improves students' motivation, as is reflected on the Table -14 and the Graph-14, respectively.

Table-15: ICT promotes collaborative learning amongst students (Statement 15)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	10	10	26	4	0	50
Percentage	20	20	52	8	0	100

Graph-15: ICT promotes collaborative learning amongst students (Statement 15)

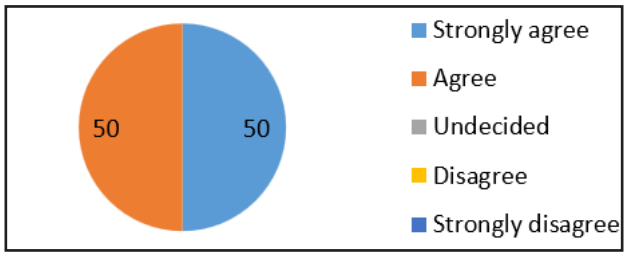


52 per cent of the respondents were found to be undecided, 8 per cent of respondents disagreed and 40 per cent respondents agreed on whether ICT promotes collaborative learning among students as is clear from the Table-15 and the Graph -15 respectively.

Table-16: ICT promotes innovations amongst students (Statement 16)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	25	25	0	0	0	50
Percentage	50	50	0	0	0	100

Graph-16: ICT promotes innovations amongst students (Statement 16)

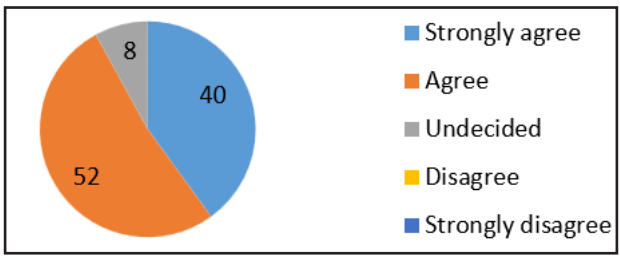


Adoption of ICT in the teaching-learning process contributes to promoting innovations among students. All the respondents (50 per cent strongly agreed and 50 per cent agreed) answered positively that ICT promotes innovations among students, which is clear from Table-16 and Graph-16, respectively.

Table-17: ICT promotes creativity amongst the students (Statement 17)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	20	26	4	0	0	50
Percentage	40	52	8	0	0	100

Graph-17: ICT promotes creativity amongst the students (Statement 17)

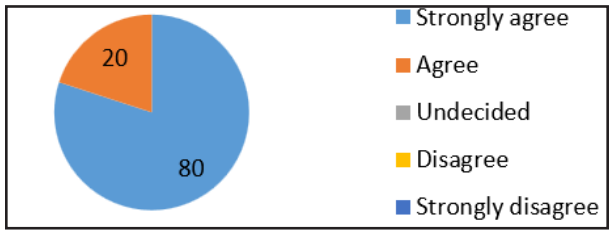


Regarding the statement 'ICT promotes creativity amongst the students', the majority of the respondents (52 per cent agreed and 40 per cent strongly agreed) are in favor of it. It is evident from Table-17 and Graph-17 respectively.

Table-18: ICT promotes active learning environment in the classroom (Statement 18)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	40	10	0	0	0	50
Percentage	80	20	0	0	0	100

Graph-18: ICT promotes active learning environment in the classroom (Statement 18)

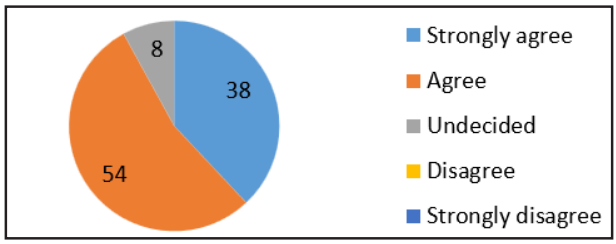


The learning environment in the classroom should be active and supportive. Almost all the respondents (80 per cent strongly agreed and 20 per cent agreed) confirmed that ICT promotes an active learning environment in the class. The data on this statement are presented in Table-18 and Graph-18, respectively.

Table-19: ICT enables students to focus better on learning (Statement 19)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	19	27	4	0	0	50
Percentage	38	54	8	0	0	100

Graph-19: ICT enables students to focus better on learning (Statement 19)

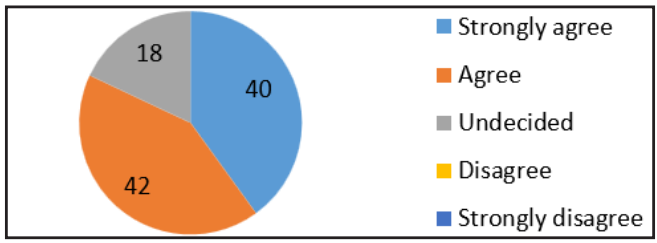


Regarding the statement 'ICT enables students to focus better on learning', the majority of respondents (38 per cent strongly agreed and 54 per cent agreed) confirmed it. The data is presented in Table-19 and Graph-19, respectively.

Table-20: ICT provides exposure to vocational skills (Statement 20)

Responses	S.A.	A.	Un.	D.A.	S.D.	Total (N=50)
Frequency	20	21	9	0	0	50
Percentage	40	42	18	0	0	100

Graph-20: ICT provides exposure to vocational skills (Statement 20)



The development of vocational skills is one of the significant aims of education. ICT, through different means, provides exposure to vocational skills. A majority of the respondents (40 per cent strongly agreed and 42 per cent agreed) confirmed this in the study. The data is presented in Table-20 and Graph-20, respectively.

Challenges faced by the head teachers of secondary schools in implementing ICT in the teaching-learning process

The majority of the respondents expressed that ICT plays a significant role in improving the quality of education. Use of ICT makes the teaching-learning process more effective. ICT motivates the learners. However, regarding the challenges faced by the head teachers of secondary schools in implementing ICT, some issues cropped up clearly. The lack of infrastructural facilities as per requirement emerged as a major challenge, which has also been highlighted by some other studies (Malhotra, 2014, Sharma, H.K. 2021). Some of the other challenges mentioned by head teachers are: lack of sufficient number of smart classrooms, network issues, lack of sufficient number of ICT tools etc., in implementing ICT-integrated education in schools.

The parents/guardians play a significant role in the holistic development of the child. According to the majority of the respondents, the income of the family, parent's level of education, number of children in the family, priority in the family, neighbourhood and beliefs related to ICT education affect a lot of the integration of ICT in education. If the income of the family is not sufficient enough to provide some kind of learning facilities like learning by using smartphones or internet facilities then their children may not be able to go with the system as per expectations. Also, the number of children in the family and getting priority in the family should be considered as some of the challenges - opined by the majority of the respondents. According to 80 per cent of the respondents, the level of education of the parents/ guardians also has an effect on learning process of the child in using ICT tools as sometimes parents may not be able to know in what way the child is using the facilities. Most of the respondents shared that some parents use to discuss the habit of using smartphones with their kids most of the times of the day, but to fulfil what kind of purposes they are using is also a matter of concern, which is difficult to know for some parents. Lack of sufficient number of trained teachers and qualified hardware technicians are also challenges in implementing ICT integrated education as opined by majority of the respondents (Sharma, 2021).

Regarding the utilization of online learning facilities by the students, most of the respondents expressed that proper utilization of online learning facilities by the students can be expected under the guidance of teachers, parents or any other person in the family who is familiar with the system otherwise it is difficult to know in what way the students are using the digital devices in the teaching-learning process.

Major findings

1. ICT helps in enhancing the teaching-learning experiences
2. ICT makes the teaching-learning process interesting
3. ICT promotes self-learning
4. ICT promotes collaborative exercises among teachers
5. ICT promotes innovations
6. ICT develops the skill of critical thinking
7. ICT provides exposure to vocational skills

8. ICT promotes active learning among head teachers, teachers and students.
9. ICT provides exposure to vocational skills
10. ICT is effective in the professional development of teachers
11. Lack of adequate infrastructural facilities, lack of a sufficient number of properly trained teachers are some of the challenges in the integration of ICT in education.
12. Income of the family, parents' level of education, number of children in the family, priority in family, neighboruhood and beliefs related to ICT education affect a lot in the integration of ICT in education.

Conclusion

Improving quality in education by using ICT in the teaching-learning process and also creating awareness among the stakeholders is the need of the hour to have digitalized India with the implementation of ICT-integrated education in schools. The perception of the head teachers of the school has a great role in improving the quality of the school. In this study, it is found that most of the head teachers of secondary schools are of the opinion that ICT enhances the teaching-learning experiences, makes the teaching-learning process interesting, promotes self-learning, promotes innovations, develops the skill of critical thinking, provides exposure to vocational skills, promotes active learning, etc. Due to a lack of properly trained teachers, lack of adequate infrastructural facilities, lack of awareness amongst some of the teachers on proper utilization of facilities related to ICT, and lack of proper skill of guiding and monitoring the children on the use of smartphones by the parents are some of the major challenges in improving quality of education by integrating ICT in education. As evident from the findings of the study it may be suggested that hands-on training followed by regular orientation programs on ICT for teachers is required to keep pace with changing technology in the teaching-learning process, creating grid-connected solar power generation facilities in schools to meet the need of required power supply, creating awareness amongst teachers on the effectiveness of ICT in teaching-learning process, guidance and counselling services to parents on use of ICT tools especially smartphones by their children effectively should also be organized to improve the quality of education by integrating ICT in the teaching-learning process.

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Research Article

Evaluating Effectiveness of ICT Tools in School Internship Programme

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Abstract

School Internship Programme (SIP) is essential part of B.Ed. Programme. It provides opportunity to Teacher Internee (TI) to practice in real classroom at schools. New technology and Information Communication Technology (ICT) has very crucial role to enhance the learning ability of students at schools. It is high time to analyze our traditional pedagogical aspects at school level to make it more effective for all students. Advancement in technologies has also produced a digital divide in our society. We have to think about this situation so as to make it easily available for all students. The investigator has tried to reflect the views of student teachers about effectiveness of ICT Tools during their teaching practice in schools. The data was collected from the student teachers of Semester IV after completing their School Internship Programme.

Keywords: SIP, MTE, MST, TI, ICT

Introduction

The profound shifts undergone in the field of education due to ICT require a pedagogical shift. Traditional teaching and learning paradigms have been shaken by the impact of ICT on educational practices. One of the greatest challenges which we need to overcome on our way to the 21st century is to enable teachers and students to achieve competency and mastery in the use of technology. The challenge is to use ICT in teaching-learning, and if this is to happen, then the change has to begin from the roots of education, i.e., the teacher education system. Teacher education institutions must provide leadership for pre and in-service teachers and model new pedagogies and tools for teaching learning. Teacher educators should expose pre-service teachers to regular and pervasive modelling of ICT. Unless and until teacher educators model effective use of ICT in their own classes, it will not be possible to prepare a new generation of teachers who effectively use ICT in their teaching.

The main aim of the School Internship Programe is the development of a broad repertoire of Perspectives, Professional Capacities, Teacher dispositions, Sensibilities and skills among the Teacher Interns (TI) To Cater to the Diverse Needs of Learners in Schools through a Prolonged Engagement of Teacher Interns with School as a Regular Teacher and participation in all the school activities.

In order to achieve the main aim of SIP, the following goals should be accomplished by Teacher Intern:

- Develop competence and professional identity as a reflective teacher.
- Inculcate and demonstrate the necessary skills in different roles to excel as a professional teacher.
- Develop skills and competencies for working diversities in school and

community; hence, learn to operate successfully and develop an inclusive society.

- Demonstrate ability to reach and liaison through collaboration with the school community and off-school campus community, interdisciplinary colleagues/experts and Teacher Education Institutions.

ICT has very important and significant role in achieving above mentioned goals of SIP. During classroom interactions interventions of new technologies have affected different domains of teaching-learning process.

Need of the Study

The internship provides opportunities to interns for individual as well as professional development through various activities of the school internship programme. Different committees have also recommended including an Internship in B.Ed. programme.

The Acharya Rammurti Committee (1990) recommended that internships should be included in teacher training programme because it provides actual field experience in realistic situations. The Yaspal Committee (1993) has also laid emphasis on internships because they enable trainees to acquire the ability for self-learning and independent thinking.

During the Internship a TI perform all activities like a teacher of the practicing school. She/he takes part in all academic and administrative work performed by a school teacher. While teaching in the classroom various pedagogical practices are used. In the modern era of ICT, there are various tools and techniques available to enhance the teaching-learning experience during classroom interaction. A teacher should be competent to use such tools and techniques to boost her/ his teaching experience.

The intent of this study is to find out the impact of ICT tools in the School Internship Program.

Review of the Literature

1. Pant, Pooja(2019), in her study entitled "A study of the impact of the use of ICT in Pedagogical Practices by Mathematics Student Teachers on problem-solving and critical thinking abilities of elementary school students" finds that the use of technology by mathematics teachers can greatly aid the process of mathematical exploration and wiser use of such aids can help to engage the students. ICT can be a great aid for this purpose.
2. Dhara, Hans (2018) conducted a "Study of ICT-related stress knowledge and attitude of tertiary level teachers and barriers in using ICT in teaching-learning process" find that the ICT barrier that tertiary teachers face on the awareness dimension is a lack of knowledge for introduction of ICT in the pedagogy where 58 per cent teacher agreed, lack of awareness of technical skills to use ICT in teaching 58.3 per cent unavailability of technology content in the curriculum 53.1 per cent Resistance towards the intervention of technology 52.8 per centged gets 49.9 per cent .
3. Kurian, Simmy (2018) has conducted a "Study on the impact of Information and Communication Technology on schools of education in Kerala from the Teacher's perspective". The finding of the study tells that there can be infinite use of computers and new age technology, but if teachers themselves are not able to bring it into the classroom and make it work, then it fails.
4. Basha, F Shaikanwar (2017) conducted a study on "Integration

and Utilisation of Information and Communication Technologies in School at Vellore District". This study reveals that all the higher secondary school teachers who are involved in the survey as a sample of the entire population were of the unanimous opinion of agreeing to the integration and utilization of ICT and felt the need to utilize those technologies at higher secondary schools.

5. Altaf Shaikh Saheen (2012) conducted a "Study of the effectiveness of Information and Communication Technology model of curriculum transition for teacher educators". In this study, he finds that there is a shift in the field of education due to a pedagogical shift using ICT.

Operational Definitions

SIP: School Internship Programme. It comprises a total of 18 weeks spread over Semesters I, II &III.

MTE: Mentor Teacher Educator who provides guidance during the entire School Internship Programme.

MST: Mentor School Teacher. A school teacher is assigned the responsibility of mentoring.

TI: Teacher Intern or Pupil Teacher

ICT: Information and Communication Technology

Objectives of the Study

1. To study the effectiveness of ICT Tools in lesson planning and strategy making.
2. To study the effect of ICT Tools on Cognitive, Affective and Psychomotor domains of learning.
3. To evaluate how ICT Tools help to explore a particular concept in different ways.
4. To evaluate the impact of ICT Tools on the teaching-learning process and effective communication.
5. To assess the issue of the availability of ICT Tools for students.

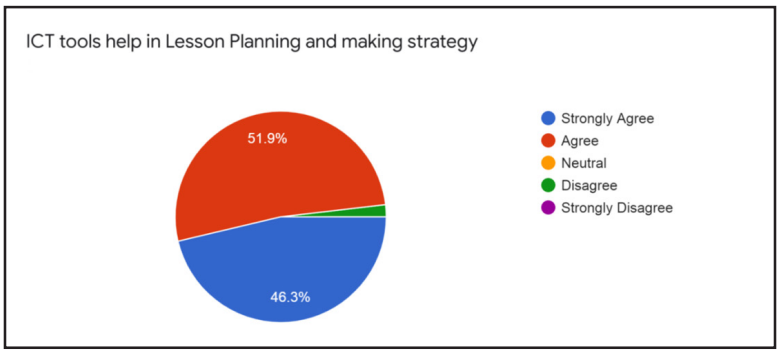
Methodology: This study was based on Descriptive Survey Method to get the opinion of Teacher Interns about the effectiveness of various ICT Tools during the School Internship Programme.

Sample: For this study, a purposive sampling technique was used. All B.Ed. Teacher Interns were involved actively in collecting the required data.

Tools: The self-prepared questionnaire was used for this study. The questionnaire was shared through Google Forms, and data was collected successfully.

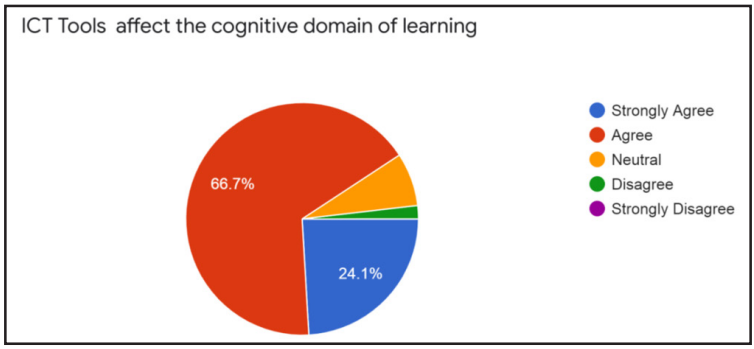
Analysis of the Data:

Graph-1: ICT tools in Lesson Planning and Making Strategy



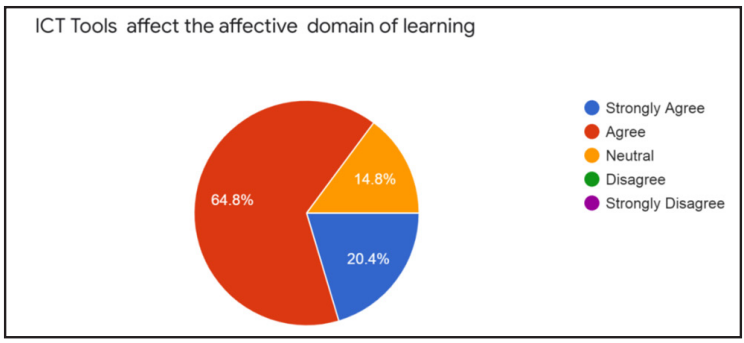
This pie chart shows that 46.3 per cent strongly agree while 51.9 per cent agree and 1 per cent disagree that ICT Tools are helpful in planning and making strategy. This shows that most of the student teachers are in favor of using ICT tools during their practice teaching.

Graph-2: ICT Tools affect Cognitive Domain of Learning



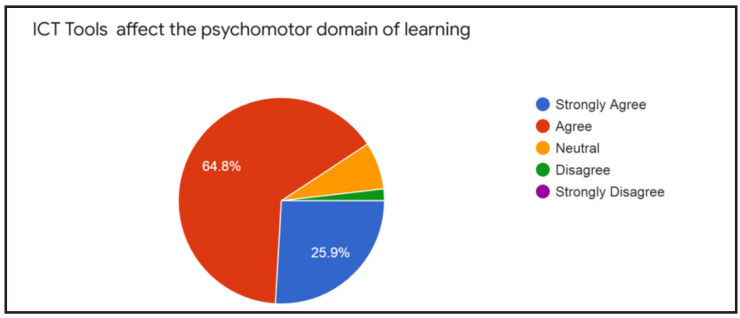
This result shows that 66.7 per cent agree, 24.1 per cent strongly agree, 1.19 per cent disagree and 7.4 per cent are neutral that the cognitive domain of learning is affected through the use of ICT Tools. This shows that the use of ICT Tools enhances the cognitive level of learning.

Graph-3: ICT Tools affect Affective Domain of Learning



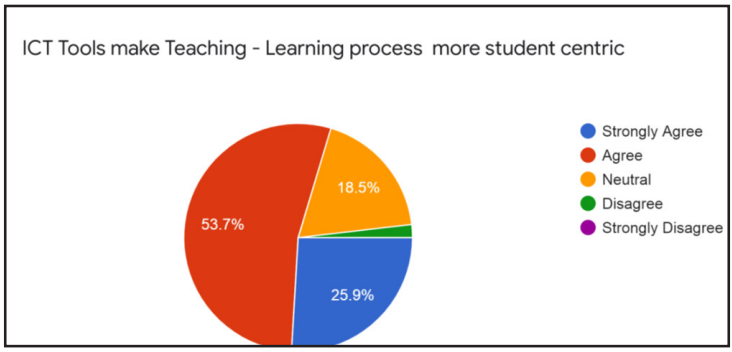
This pie chart shows that 64.8 per cent agree, 20.4 per cent strongly agree and 14.8 per cent are neutral about the effect of ICT Tools on the Affective domain of learning. The result tells that some TIs are not sure about the effect of ICT Tools on the cognitive domain of learning.

Graph-4: ICT Tools affect Psychomotor Domain of Learning



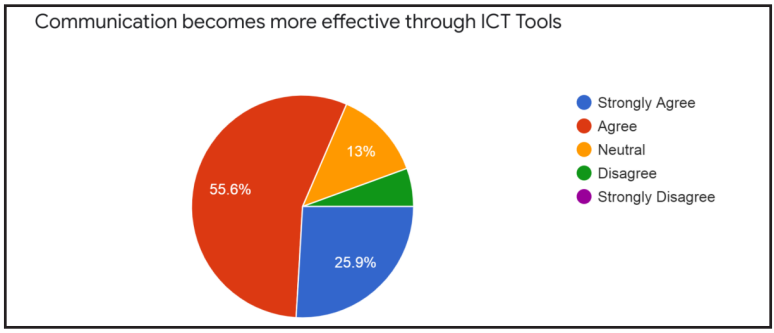
The above pie chart shows that 25.9 per cent are strongly agree , 64.8 per cent are agree , 1.19 per cent are disagree and 7.4 per cent are neutral that psychomotor domain of learning is affected through the use of ICT Tools in practice teaching. This result shows that most of the TIs are in favour that psychomotor domain is affected by the use of Various ICT Tools in practice teaching.

Graph-5: ICT Tools make Teaching-Learning process more students centric



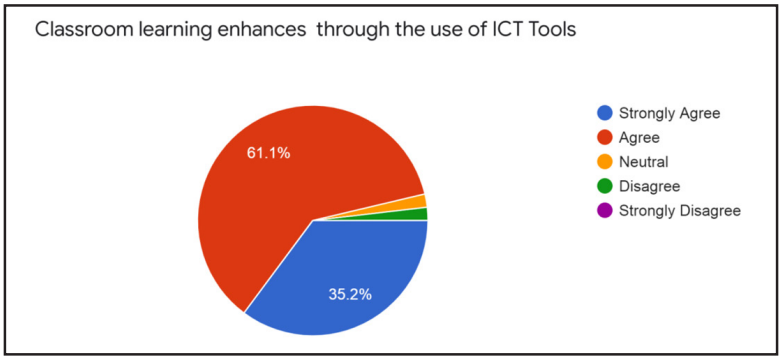
This pie chart shows that 25.9 per cent strongly agree, 53.7 per cent agree, 18.5 per cent are neutral and 1.19 per cent disagree about the opinion that ICT tools make more student-centric teaching-learning. This result shows that students' involvement is enhanced through the use of ICT Tools.

Graph-6: Communication becomes more effective through ICT Tools



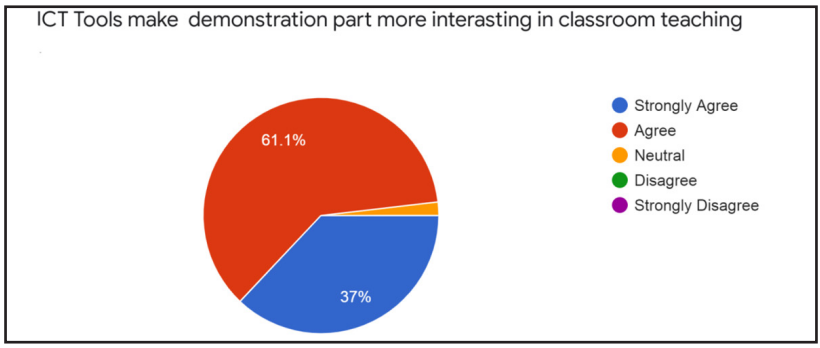
This pie chart shows tha 55.6 per cent agree, 25.9 per cent strongly agree, 13 per cent neutral and 5.6 per cent disagree about the view that communication becomes more effective through ICT Tools.

Graph-7: Classroom learning enhances through the use of ICT Tools



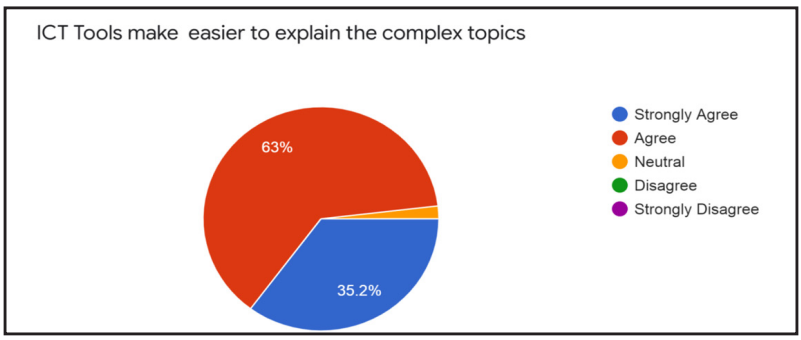
The above pie chart shows that 61.1 per cent agree, 35.2 per cent strongly agree, 1.9 per cent neutral, and 1.8 per cent disagree that classroom learning is enhanced through the use of ICT Tools.

Graph-8: ICT Tools make demonstration part more interesting in classroom teaching



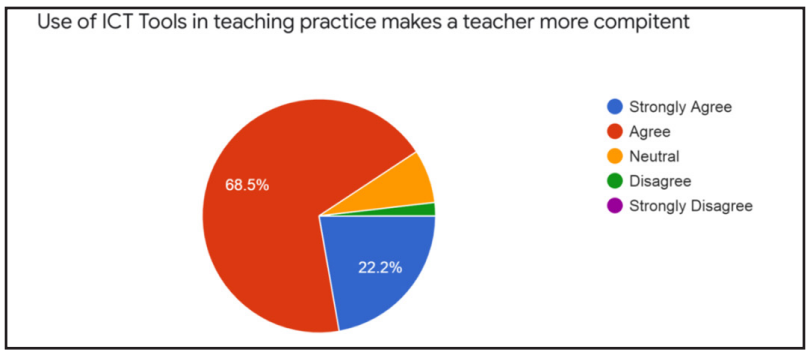
This pie chart shows that 61.1 per cent agree, 37 per cent strongly agree, and 1.19 per cent neutral about the view that ICT Tools make the demonstration part more interesting in classroom teaching.

Graph-9: ICT Tools make easier to explain the complex topics



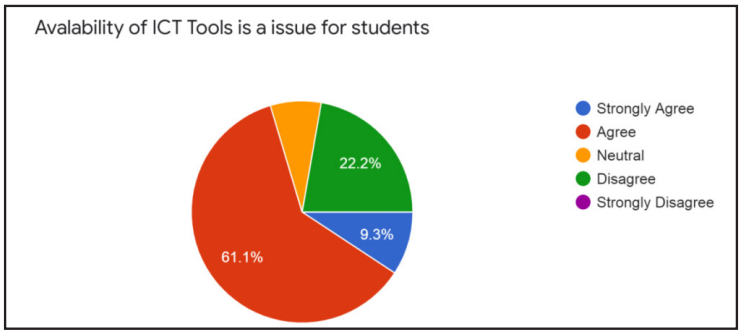
This pie chart shows that 63 per cent agree, 35.2 per cent strongly agree and 1.19 per cent neutral that ICT Tools make it easier to explain complex topics.

Graph-10: Use of ICT Tools in teaching practice makes a teacher more competent



This pie chart shows that 68.5 per cent agree, 22.2 per cent strongly agree. 7.4 per cent are neutral and 1.19 per cent disagree that the use of ICT Tools in teaching practice makes a teacher more competent.

Graph-11: Availability of ICT Tools is an issue for students



This pie chart shows that 61.1 per cent agree, 22.2 per cent disagree, 9.3 per cent strongly agree, and 7.4 per cent are neutral that the availability of ICT Tools is an issue for students.

Conclusion

The findings of this study show that ICT Tools are helpful in various ways during the School Internship Programme. It helps in planning and making proper strategies during classroom teaching practice. ICT Tools positively affect Cognitive, Affective and Psychomotor domains of learning. Various ICT Tools make complex topics simple and interesting for students. It enhances the student's ability to explore complex topics in different ways. Student involvement increases through the use of ICT Tools in the classroom teaching-learning process. There are various tools available that enhance students' communication abilities. It is evident that students learn in a better way when a topic is explained through demonstration. ICT Tools help them in this process. When TI explains a complex topic in a simple and interesting way, it boosts her confidence level. This study also reveals that the availability of ICT Tools for all is a challenging issue, but this challenge can be overcome in a phase-wise manner. The digital Teaching-Learning process should be strengthened to make our future generation of Teachers competent enough to face all kinds of challenges smoothly.

Suggestions

This study was focused on the effectiveness of ICT Tools in School Internship Program. Further, such studies may be carried out at different levels, such as pre-primary level, higher secondary level, and higher education level. Comparative studies may also be done for male-female groups in rural and urban areas.

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