

# ICT in Rural School Education: Impacting on Children Cognition



Vijayudu Gnanamkonda, Chakravarthi Koundinya, Chethana G Krishna

**Abstract:** Intellectual thinking and analytical skills in school children helps them to achieve new heights. Globally Information and Communication Technology (ICT) started playing a key role in school education. In developing countries, it is premium and also having limited human resource. India is not an exception. If the usage and its importance reach to the nook and corner of the country, one can experience overall development of children. The purpose of the study is to understand the role of ICT tools impacting children cognition across rural high schools. The main objective is to study how teachers perceive the ICT integration in teaching process and its effect on students learning and change of their behaviour. The secondary objective is to study students' opinion on ICT based learning process and its effect on improving knowledge and behaviour. The study has followed the ethnographic research methodology (observation and field research) in fully equipped ICT schools in Telangana and Andhra Pradesh, Telugu States of India. The data collection is through a structured questionnaire as well observations with the selected sample population. The sample is qualified students and trained teachers in the government as well private schools where the ICT tools are implementing and strictly following. There are some interesting findings between teachers' perception and students' perception towards change in learning process and change in behavior. Originality of the paper is the researchers tried to elucidate the facts about the students' and teachers' perception regarding ICT tools in education and their effectiveness in changing the behaviour of the students as well teachers on education.

**Key words:** Students' Perception, ICT tools, technology driven classrooms, rural India, Rural High Schools

## I. INTRODUCTION

The role of Information and Communication Technology (ICT) in school education is enormous.

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ICT in education can be defined as 'diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage the information.

These technologies include computers, the internet, broadcasting technologies, and tele communication (ICT Guidelines). ICT is also defined as a Range of electronic technologies which when converged in new configurations are flexible, adaptable, enabling and capable of transforming institution and redefining social relations. The range of technologies is increasing all the time and there is a convergence between the new technologies and conventional media [1]. Online education consists of all structure of electronically support for teaching and learning purpose. It also facilitates individuals who are deprived for geographic, physical, or social conditions have increasingly better educational odds via online. It is able to sustain synchronous and asynchronous communications in a mixture of formats ranging from text, voice and audio [2]. In early 1960s Government of India (GoI) has formed National Educational Commission on 14 July 1964 headed by Daulat Singh Kothari to evolve the general educational system in India. The commission report (1966) [3] mentioned that a poor teaching lead to a bad learning, technical & visual support enhances the learning ability in students. Government of India (GoI) has taken an initiation and integrated the technology in education strongly. Initially, technology was used in education through television, later on computers, and then, internet, animation, etc. ICT is mastering the basic skills alongside reading, writing and numeracy [4] in students. Teachers are also recruited and trained accordingly. The states of India is also implementing similar integration in state operating schools to encourage the school going children, as well creating some new platforms for improving the knowledgeable society. The rapid changes in ICT products/ tools have influenced the development of technology used in the educational field [5]. This made, the teachers should believe in the effectiveness of technology, as well they must have control over technology [6]. It comes through updated ICT tools, teachers' integration in technology usage, and regular maintenance without any interruptions. In rural India, this is a biggest challenge.

ICT provides new educational approaches [7] and it also enhances the international dimension of educational services [8]. After using ICT in their teaching, the innovative teachers stated that the use of ICT is motivating the students as well teachers [9]. ICT integration is required with the subjects and newly developed technologies. Since, ICT leads all processes based on information, teachers and students must be technological competent [10].



ICT increases the flexibility of delivery of education [11]. It influences the way students are taught and how they learn as now the processes are learner driven.

Jimoyiannis and Komis, [12] examined teachers' beliefs and attitudes towards information and communication technologies (ICT) in education. They identified that there are three groups of teachers towards technology usage. The first group is teachers with positive attitude towards technology usage, second group is teachers with negative attitude and the third is neutral. The integration of ICT in classroom will enhance the learning skills, stimulates social skills, problem solving, self-reliance, responsibility and the capacity for reflection and initiative. These elements are core values that students need to achieve in an active teaching and learning environment [13]. For the better learning, the local content has its importance; the teachers' role is accountable in developing and implementing the suitable things [14]. The quality will come through proper usage of internet and other relevant information sources along with the intellectual property of a teacher. For the supreme impact, the content being offered need to suit the users' interest.

### II. STATEMENT OF THE PROBLEM

Here, it clarifies the role of a teacher that integrates with the technology as well having control over technology. A strong belief of a teacher will lead to a positive perception. Reid's theory of perception [15] states that belief lies at the heart of perception. He affirms the central role of belief in perception in both his early and late philosophical writing. In his discussion on the distinction between mere sensation and perception, Reid testifies that the perception of an object implies both a conception of its form, and a belief of its present existence. Reid concluded that every operation of the senses, in its very nature, implies judgment or belief, as well as simple apprehension. Hence, this study has taken up to measure the teachers' perception towards ICT tools and their impact in education and the effect on students' learning and classroom behaviour. It also studied students' perception (Look Exhibit 1&2 for Teachers and Students perceptual items respectively).

### III. THEORETICAL BACKGROUND AND ICT TOOLS IN SCHOOL EDUCATION

The combination of computer, communication and content commonly known as ICT has played a prominent role in the 21st century. The National Curriculum Framework (NCF 2005) of Indian education highlighted the usage and importance of ICT in school education in 2005 [16]. The expected outcomes of ICT in classroom instructions from the primary schooling are collaborative learning, multidisciplinary problem solving and critical thinking skills which are easily available in open domain easily accessible over the web.

ICT curriculum has been designed by the MHRD differently in the primary, upper primary, secondary and higher secondary education in India. In the primary and upper primary level, the students need to be able to access information, compile different views, analyze and conclude in their own way. Secondary school students gather and

compute data and prepare reports in subjects like science, mathematics and others. Senior secondary students use ICT to solve complex, multi-disciplinary problems for subjects like biochemistry, bioinformatics, environmental science, forensic science, etc. ICT is being actively implemented in CBSE affiliated schools across India not only to improve academic learning among students but also enhance productivity of teachers in classrooms. Students also undergo a continuous comprehensive evaluation (CCE) or periodic formative assessments which enable to understand the correlation between classroom teaching and e-learning; for example, a teacher can conduct a quiz online as part of formative assessment [17].

Dr. Tapas Kumar Sarkar (2012) [18] has indicated tools that are used in modern schools like Educomp and Everonn has enabled technology driven classrooms and support systems in India. Test prep websites like ndvtutor.com and learnhub.com that are using technology for assessments would also become popular. He indicates that teachers have to be trained to employ these tools to enhance learning of students. He suggests that a professional who understands how to impart quality learning can enable to bring structure to the process and also train the teachers. He emphasizes that ICT based training has been embedded in the curriculum and can develop the requisite skills if implemented efficiently. In a survey of 162 secondary school teachers have found that 98.6% of teachers in government CBSE schools and 96% of teachers of private schools and 58% of teachers in state board have relevant skill sets to employ ICT in teaching and learning and the board of education has a high impact factor of using ICT in secondary education [19]. Kleopatra Nikolopoudou (2014) [20] conducted a pilot study involving a multidisciplinary teaching approach through ICT was conducted by integrating mathematics and science in two classrooms in a secondary school in Athens, Greece. 56 students in the age group of 13 -14 years were involved in the learning activities by integrating mathematics and physics through the 'Geogebra' [21] software. Two or more teachers from different disciplines worked together to coordinate the course, develop teaching materials, link both academic and occupational skills for the topics Quadratic functions and Vectors. The pilot study saw an increased motivation among pupils and enjoyed the applications of the mathematics and physics problems in the real world. However this study did not measure the students' academic performance by conducting evaluations. Kristine Scharaldi (2018) [22] underlines the benefits of using technology in teaching mathematics adopted by Mr. De Maio. Mr. DeMaio has a channel in YouTube with the same name, has a collection of videos/ movies which he has been using to teach an assortment of concepts like multiplication to planets in the solar system to his students in Union Beach, New Jersey and to other children across the world. He has 130,908 subscribers with 37,254,698 views as on August 17, 2019. His videos are termed 'edu training' which consists of music videos that include his school's teachers along with puppet characters Steven and Andy.

The students like the movies so much that they play them again and again. This multimedia approach in children's learning has resulted in better retention of the concepts and improved the conceptual understanding even in subjects like mathematics and STEM subjects.

ICT has helped teachers in developing content by employing the various e-sources like videos and animation. The lecture notes in power point uploaded in the institutional learning management system enables the students to refer to them as and when they require. The laboratory sessions can be captured on the video which can be again referred by students before the examinations.

J Boaler (et al 2016) [23] are trying to identify how the brain thinks mathematically and it has been deciphered that visual pathways are employed while solving number calculations. A team of Stanford University professors led by Dr. Jo Boaler who also own a website 'youcubed' have observed that their concept to teach mathematics using ICT has been followed in almost 50% of US schools, has shown 50% improvement in test scores, and has impacted 230 million students in their learning process. The website <https://www.youcubed.org/#> [24] has subscribers from more than 140 countries. Dr. Jo Boaler has been named one of the 8 educators 'changing the face of education' by the BBC. To understand the impact of visual mathematics 'youcubed' has been collaborating with two neuroscience advisors, Christian Battista and Lang Chen [25]. They have found a new evidence of visual mathematics which enhances mathematics.

Ryan Vail Thomas (2016) [26] indicates that students who used the dynamic graphic utility Desmos were more engaged. The tool was also found to make students actively participate in mathematics. Desmos [27], a web based calculator has been used by millions of students including visual impaired students for free. The digital curricula are developed for various schools which also conducts assessments digitally. Digital math activities are uploaded regularly. Students are also encouraged to create their own mathematical ideas, share and collaborate.

Manaus Consulting presented a research paper at the International Society for Technology in Education on the topic 'Assessing the use of technology and Khan Academy to improve educational outcomes' [28] which indicated that Khan Academy lectures on mathematics produced a higher effect on the performance of students in mathematics and STEM. Khan Academy, owned by Sal Khan recorded math videos on YouTube to tutor his cousins who lived far away. The nonprofit organizations enable students to learn on a variety of subjects like mathematics, science, computer programming, history, art history, economics and more. The Academy uploads instructional videos to enhance personal learning experience by conducting online quizzes or practical exercises to measure the performance of students. The transcripts that are also incorporated with the instructor's videos enhanced the learning of the students. The other tools Khan Academy uses are online and offline modes for practical exercises, videos, and a learning dashboard which enables the students to learn at their own pace. Real life problems are also sometimes uploaded to evince interest in the students. For example, educator Jennie Maglera used a video recorded in a supermarket aisle to recommend her the best brand of cheese

based on pricing and promotional strategies displayed on the shelves [29].

FSG, a consulting firm which supports leaders in bringing an ever-lasting social change wrote a case study of a statewide pilot initiative for Khan Academy taken in Idaho during the academic year 2013 -14 [30]. It consisted of 47 schools in 33 districts with 173 teachers and around 10,500 students. This initiative was supported by the J.A. and Kathryn Albertson Family Foundation. This initiative resulted in teachers trying to improve their teaching practices and administrators wanted to enhance student engagement. At the end of the academic year, 5,309 students from the 3rd to 8th grade were found eligible to take the MAP (Measures of Academic Progress) assessment. The students had to answer 50 questions in 20 minutes. It was observed that those students who undertook 40% of the mission<sup>1</sup> grew 1.5 times more than expected and students who took 60% of the mission grew 1.8 times or more than expected. This initiative suggested that students should obtain the right kind of material to achieve the learning objective.

Microsoft's Skype in the Classroom and Nepris are other teaching and learning platforms which students can embark on. Skype in the classroom<sup>2</sup>, a free community service provides transformative experience in education, which include virtual field trips, guest speakers, connecting classrooms and live projects. Nepris<sup>3</sup> connects industry, tutors and learners to bring in industry relevant real-time learning and career growth to all the students virtually. Organizations in turn can also impart skill based training programs not only to increase their reach in imparting knowledge but also in brand recognition.

Rebecca Jenkin (2010) indicates the ICT indeed helps students to improve their subject knowledge in subjects like maths and science but also should be used for literacy lessons in speaking and listening, public talk, body language and students' response through interactive white boards (IWB), encourage early reading through synthetic phonics and audio based reading, vocabulary enhancement, sentence coherence, comprehension through aural and visual activities, article/paragraph composition by importing pictures and research on content, and drama in literacy lessons which can be captured on camera by employing freeze frame functions and displaying them on IWB which helps in sharing, evaluating and improved understanding<sup>4</sup>.

#### IV. METHODOLOGY

A positive perception of teachers' towards ICT tools in education will bring a great change in education as well in students. Based on the theoretical background and previous studies it is found that there is a paucity of studies in rural

<sup>1</sup> Mission - Any learner using Khan Academy can choose to go on a math "mission," which is a personalized journey through a curated set of grade-level or subject-level content. Grade level missions provide comprehensive coverage over the Common Core standards, and most missions also include core prerequisites

<sup>2</sup> Skype in the classroom, <https://education.microsoft.com/skype-in-the-classroom/overview>

<sup>3</sup> Nepris, <https://www.nepris.com/about>

<sup>4</sup> Rebecca Jenkin, "How ICT resources can support learning at the primary level", [https://www.open.edu/openlearncreate/pluginfile.php/5902/mod\\_resource/content/1](https://www.open.edu/openlearncreate/pluginfile.php/5902/mod_resource/content/1), July 2010

areas where 60 percent of the India is living. The purpose of the present study is to understand the role of ICT tools in rural India and how are they impacting on the children learning process. For the study, the researchers selected twenty ICT tools implemented schools in Telugu states i.e. Andhra Pradesh and Telangana of India. They are purely based on the convenience and every school among them are situated in a Mandal headquarter. The researchers spent one full working day at each school and observed several subject teachers while teaching the subject by using any one of the ICT tools. Based on the literature, two separate structured questionnaires were developed and collected the information from 215 students and 120 teachers respectively based on the convenience sampling method. The questions were listed out in Exhibit I & II [31].

Teachers responded for the questions that enable the perceptions of a teacher towards the integration usage of ICT Tools and their effectiveness on students learning outcome as well students' behaviour. Students responded the questions that motivate and encourage students' learning process as well change occur in the behaviour.

The following hypotheses were made based on the previous studies

- ICT tools enable the creativity in students.

*H1: There is no perceptual difference between teachers and students on ICT tools stimulating creativity.*

- A strong confidence will rise in students being they are well versed with new paradigm shift in education.

*H2: There is no perceptual difference between teachers and students on ICT tools in building up confidence.*

- ICT tools improve students reading and writing skills.

*H3: There is no perceptual difference between teachers and students on ICT tools improving reading and writing.*

- ICT tools encourage the student community to open their ideas in public. They are open to share their ideas in public. No hesitation stops them to speak in public.

*H4: There is no perceptual difference between teachers and students on ICT tools in expressing ideas.*

- There is guaranteed hands on experience for both the students as well teachers. A new paradigm shift in education enhances the ability of the student community.

*H5: There is no perceptual difference between teachers and students on ICT tools in enhancing learning experience.*

## V. ANALYSIS AND INTERPRETATION

### A. Teachers' Perception of ICT integration in teaching effectiveness

The teachers and students perceptions towards the effectiveness of ICT tools in teaching learning process is being measured with the Likert scale (5 being strongly agree and 1 being strongly disagree). Table I below provides the teachers' perception of using ICT in teaching. The data provides us the inference that most of the teachers feel that ICT tools do influence the effectiveness of the teaching positively. With wide variety of teaching resources available

through ICT, teachers have been getting more benefit in enhancing the teaching-learning process. Across the ICT tools benefits that teachers perceive the mean ranged from 3.80 to 4.43 except one with mean of 2.73.

It was inferred from the results that close to 90% of the teachers perceive that teaching through ICT allows the student to be more creative in class, the mean of which stands at 4.25%. Also, with standard deviation at 0.31, it clearly indicates there are very few who are away from the majority perception.

With respect to helping students in providing related information, ICT helps a lot and more than 84% of the teachers perceive the ICT's influence positively. Not only just helping the individual students, teachers perceive that it makes students communicate with their classmates more, which makes peer learning effective, which is a great improvement in learning phenomenon. Nevertheless, this practice makes the student improve his or her knowledge and thinking capacity. The mean value was close to 4+ indicating the higher perception among teachers on improving students' knowledge and peer learning.

Teachers perceive that ICT tools improve the students' confidence as they participate in activity of learning as these tools are included (with mean at 4.14). This indicates major contribution of ICT towards building of students' confidence which is the one important attribute of student personality development.

Whereas teachers' perceptions show that they are skeptical about whether these ICT tools could contribute to the overall reading and writing abilities of the students. With a mean score of 2.73, almost close to 60% of the teachers perceive the ICT tools might not develop the reading and writing abilities of the students. But, it was observed that standard deviation is at 0.56, indicating lot of variation in the teachers' perception. Though variation is high, ICT's role in improving reading and writing capabilities is questionable.

When it comes to change in students' behavior with the use of ICT tools, it was observed that almost 70% of the teachers felt ICT could contribute. With standard deviation of 0.47 and mean of 3.8, there could be few teachers not getting any support in terms of disciple and behavior of students with the involvement of ICT tools in teaching. Nevertheless, high percentage of teachers (98%) felt ICT tools will contribute to better expression of ideas where as close to 95% felt ICT provides the best learning experience.

### B. Students' Perception of ICT integration in learning effectiveness

This study also attempts to understand the students' (215 students) perception of ICT integration and its influence on their learning process is indicated in Table II below. When compared with teachers' perception the mean scores are little less ranging from 3.39 to 4.43. When checked whether ICT tools improve their creativity while learning, 86% students felt so indicating it as a good mode of learning aid. Hence, students could improve their creativity with the use of ICT in learning process.

Also, students (72% and mean of 3.75) felt that they can communicate well with their peer group while learning through ICT tools. This indicates students could improve on team interaction and learning among peer groups, though standard deviation is at 0.45.

When the knowledge and information gain by ICT tools is being tested, students felt that these tools contribute more to knowledge improvement (94%) than getting more related information (81%). This denotes clearly the higher contribution of ICT towards students' knowledge improvement than mere information providing tool.

When the influence of ICT tools on improving reading and writing skills is being tested, students felt that they do get support. With 56% students agree that ICT tools will improve reading and writing skills, the mean 3.39 with standard deviation of 0.56 indicate the variance in perceptions. This inference when is compared with the teachers perceptions provides a varied view.

While the students felt that their behavior in the class is better with the involvement in ICT tools and so they can express their ideas better (with mean of 4.43 and 4.33 respectively). The standard deviation of 0.2 for both – well behavior and expressing better ideas indicate that most of the students think alike i.e., their behavior and expression is influenced by ICT tools.

### C. Hypotheses Testing

As we tested the teachers and students' perception towards ICT tools in achieving major objectives of teaching methodology like stimulating creativity, expression of ideas, overall learning etc., an attempt is made to compare these perceptions across two groups in Table III. These hypotheses bring in the difference in perceptions across teachers and students if any and provides researcher to explore further more to address the issues. The first hypothesis which addresses that ICT tools influence in stimulating creativity among students is being accepted. Hence, it is proved that both teachers and students perceive the same and both groups are in belief that ICT tools do help stimulating creativity.

The second hypothesis explores both groups' perceptions on building confidence with the help of ICT tools and this is also being accepted ( $p$  value = 0.102 > 0.05), indicating that there is no perceptual difference between students and teachers on ICT impacting confidence building among students.

The other two hypotheses H4 and H5 were being accepted indicating that both teachers and student community perceive the same and that is ICT tools impacts expression of ideas and enhancing learning experience.

## VI. DISCUSSION AND CONCLUSION

With huge emphasis and budget allocations on ICT tools by governments and NGOs towards primary and secondary education, it becomes decisive to address the influence on overall student learning. The purpose of this study is to find the perceptions of the teachers and students who the main stake holders are being benefited much over the years. This teaching pedagogy has been contributing a lot to the student community in terms of building creativity, improving knowledge, expression of ideas, communication, and overall confidence building. Teachers felt ICT tools as an important aid, except that few of the them felt it might not help student in improving his or her reading and writing capabilities, which students perceived differently. Though this study has conducted in rural areas, the response rate is high and they feel that they are on par with urban schools except improvement in reading and writing through ICT.

The major limitation for this study is either the teachers or students have not compared with international schools or top rated schools in urban. The structured questionnaire might have restricted them to answer within given questions. Based on this, the researchers may not generalize the research outcome.

In further research, researchers can go through the open ended questions to understand the dreams / expectations of the students and teachers for their betterment. The research also can focus on the intellectuality, innovations/ creativity, participation in state / national science fairs and mathematics competitions/ Olympiads etc.

Having understood the role, the schools' management could bring in more such pedagogical tools (like Simulations, Virtual and Augment reality etc.) synchronizing with the excellent articulating skills that our teachers have. Overall, the ICT tools could create a lot of value in the student learning and teaching process thereby building up potential citizens for the country.

**Table 1: Teachers' Perception of ICT integration in teaching**

	Items	Strongly Disagree	Disagree	Neither Nor	Agree	Strongly Agree	Mean	SD
1	ICT usage allows student to be more creative	0	10 (8.33%)	2 (1.67%)	56 (46.67%)	52 (43.33%)	4.25	0.31
2	ICT helps students to find related information	2 (1.67%)	12 (10%)	5 (4.17%)	52 (43.33%)	49 (40.83%)	4.12	0.32

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3	Usage of ICT encourages students to communicate with their classmates	0 (0%)	6 (5%)	2 (1.67%)	68 (56.67%)	44 (36.67%)	4.25	0.29
4	Use of ICT improves confidence	1 (0.83%)	5 (4.17%)	3 (2.50%)	78 (65.00%)	33 (27.50%)	4.14	0.29
5	ICT makes students learning effective	2 (1.67%)	4 (3.33%)	5 (4.17%)	78 (65.00%)	31 (25.83%)	4.10	0.31
6	ICT broadens students' knowledge paradigm	5 (4.17%)	14 (11.67%)	4 (3.33%)	51 (42.50%)	46 (38.33%)	3.99	0.39
7	ICT supports students' ability in reading and writing	28 (23.33%)	42 (35%)	5 (4.17%)	25 (20.83%)	20 (16.67%)	2.73	0.56
8	Students are disciplined and well behaved with the use of ICT	5 (4.17%)	22 (18.33%)	8 (6.67%)	42 (35%)	43 (35.83%)	3.80	0.47
9	ICT makes students express their ideas better	1 (0.83%)	2 (1.67%)	0 (0%)	58 (48.33%)	59 (49.17%)	4.43	0.28
10	ICT promotes active and best learning experience	5 (4.17%)	6 (5.00%)	2 (1.67%)	54 (45.00%)	53 (44.17%)	4.20	0.31

Source: Primary data

**Table II: Students' Perception of ICT integration in teaching**

	Items	Strongly Disagree	Disagree	Neither Nor	Agree	Strongly Agree	Mean	SD
1	I feel ICT usage brings more creativity while learning	12 (5.58%)	15 (6.98%)	2 (0.93%)	121 (56.28%)	65 (30.23%)	3.99	0.26
2	I can find related information with ICT	22 (10.23%)	15 (6.98%)	2 (0.93%)	122 (56.74%)	54 (25.12%)	3.80	0.3
3	With ICT usage I communicate with my classmates	20 (9.3%)	25 (11.63%)	13 (6.05%)	87 (40.47%)	70 (32.56%)	3.75	0.45
4	ICT builds up my confidence	10 (4.65%)	12 (5.58%)	2 (0.93%)	112 (52.09%)	79 (36.74%)	4.11	0.25
5	With ICT my learning is very effective	5 (45.00%)	10 (45.00%)	2 (45.00%)	128 (45.00%)	70 (45.00%)	4.15	0.23
6	ICT broadens my knowledge pattern	6 (2.79%)	5 (2.33%)	1 (0.47%)	102 (47.44%)	101 (46.98%)	4.33	0.21
7	ICT helps me in improving my reading and writing skills	25 (11.63%)	48 (22.33%)	21 (9.77%)	61 (28.37%)	60 (27.91%)	3.39	0.56
8	ICT makes me well behaved in the class	2 (0.93%)	3 (1.40%)	2 (0.93%)	102 (47.44%)	106 (49.30%)	4.43	0.2
9	I can express my ideas better with ICT	2 (0.93%)	3 (1.4%)	2 (0.93%)	122 (56.74%)	86 (40.00%)	4.33	0.2
10	ICT provides me best learning experience	3 (1.40%)	5 (2.33%)	5 (2.33%)	118 (54.88%)	84 (39.07%)	4.28	0.21

Source: Primary data

**Table III. Hypotheses Testing**

Hypotheses	Association Description	P-Value	Result
H1	Stimulating creativity	0.078	ACCEPTED
H2	Building confidence	0.102	ACCEPTED
H3	Improving reading and writing	0.036	REJECTED
H4	Expressing Ideas	0.115	ACCEPTED
H5	Enhancing learning experience	0.096	ACCEPTED

Source: Primary Data Analysis

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**Exhibits**

**I. Teachers Perception towards ICT Tools and their effect on students**

1	ICT usage allows student to be more creative
2	ICT helps students to find related information
3	Usage of ICT encourages students to communicate with their classmates
4	Use of ICT improves confidence

5	ICT makes students learning effective
6	ICT broadens students' knowledge paradigm
7	ICT supports students' ability in reading and writing
8	Students are disciplined and well behaved with the use of ICT
9	ICT makes students express their ideas better
10	ICT promotes active and best learning experience

**II. Students Perception towards ICT Tools and their effect on them**

1	I feel ICT usage brings more creativity while learning
2	I can find related information with ICT
3	With ICT usage I communicate with my classmates
4	ICT builds up my confidence
5	With ICT my learning is very effective
6	ICT broadens my knowledge pattern
7	ICT helps me in improving my reading and writing skills
8	ICT makes me well behaved in the class
9	I can express my ideas better with ICT
10	ICT provides me best learning experience

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