

# Effectiveness of Informational Communication Technology Instructional Package (ICTIP) on English Language Learning among Secondary School Students: An intervention study during Covid-19

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## Abstract

Information and Communication Technology (ICT) is dominating the world in general and equally imparting the best of the resources in quality education, hence, 21<sup>st</sup> century is considered an era of ICT in education (Mayer, 2014). This present unprecedented Covid-19 pandemic created a wide range of gaps in physical classroom practices in most of the world and it is also evident that the whole world solely depends on the best ICT resources for instruction to support the teaching-learning process for which an experimental study administered to evaluate the relative effect of Informational Communication Technology Instructional Package (ICTIP) in teaching the English Language. The sampling of the study consists of 61 students of the 10<sup>th</sup> class aged 15 to 17 years from Jawahar Navodaya Vidyalaya students of the Pondicherry region. The ICTIP consists of various instructional interventions on content and pedagogical inputs to improve the academic performance in English Language learning between the control and experimental group before and after intervention respectively. The mean scores of the experimental group were found statistically significant when compared to that of the control group after the intervention of English language skills and invariably increased the mean scores of listening, speaking, reading and writing skills. Hence, this study reveals that ICT instructional package is effective and shall always bring desirable changes in any content teaching especially during this COVID pandemic which helps teachers to use it day to day classroom practices and other stakeholders to encourage the same.

**Key Words:** ICT, Instructional Package, English Language skills, School students.

## Introduction

Shaping India's future to achieve social and educational goals is a fundamental challenge for Mankind and India, being a progressing society trying hard to become a superpower by converting its demographic advantage into a knowledge powerhouse in every possible area of concern, including

education pre-school to higher education, the twenty-first century is referred to as the Era of ICT.

Information and communication technology (ICT) has become one of the most important tools in the learning process. The purpose of this study is to evaluate how well the intended and constructed instruction can improve

English Language Teaching (ELT) skills, such as listening, speaking, reading, and writing. Various studies have found that educational materials that are embedded with instructional information and given in the form of text, pictures, voices, and so on are better than words alone. In view of Mayer (2014) written and spoken text are examples of words, while static graphic images, animation, and video are examples of pictures. According to Kanellopoulou et al. (2019) using both words and pictures allows the brain to process more information in working memory. Mohseni (2014) investigated the impact of chunk learning on listening comprehension and discovered that chunk learning, which includes multi-words, verb idioms, and collocations, had a significant impact on listening comprehension ability. According to Gilakjani et al. (2011), a video instructional package improves students' grasp of physics topics, skill acquisition, and performance. The use of video in listening and grammar, as well as enhanced pronunciation of English words, demonstrated that the learner became more engaged and spontaneous in the acquisition of new words (Spector et al., 2014). According to Gilakjani et al. (2011), the usage of multimedia can increase learners' intrinsic motivation.

Schools of today are looking at opportunities to strengthen their structure become more competitive, adopt new technology in communication and information that are also affordable, which will aid in getting over competition and sustaining in the long run (Spector et al., 2014). The education sector is not uniform in developing countries like India. Schools have diversified status in their infrastructure. In India, Public schools are funded by the Government at the third level, followed by Aided schools and Private schools which are at the top in terms

of technology and infrastructure. The era is Multimedia, Video Conferencing Information technology communication which pushes schools to Adopt ICT in their curriculum and mode of teaching largely to sustain the field of education (Fishman et al., 2004). ICT enabled learning gives students access to the latest information and technology, talented mentors, and international teachers' expertise, which otherwise is almost impossible for many. ICT enables the easy adoption of different approaches and enhances teaching and learning (Shirley Ayonmike, 2020).

### **Need and importance of the Study**

In the teacher training institutes sector, information and communication technology (ICT) is employed as a communication tool to improve student teachers' learning and teaching techniques. Training institutions use communication software to send, save, share, and exchange information as technology advances in education and training. ICT in education has driven many teacher training institutions to become acquainted with smart technology in this technological era. The Government of India, as per the revised scheme of Information and Communication. For this reason, many programs have been taken by the Government.

Research in education has been established that language fluency improves the achievement of the students that become joyful learning at the same time. Language helps the students to understand the content and they can study in-depth when the content is understood literally. Students become restless when the language of the content is not understandable to them. However, the understanding ability enhances the learning ability and increases the rapidity of understanding. As Rashtriya Madhyamik Shiksha Abhiyan (RMSA) emphasizes the learning

should be meaningful and joyful and thus the students take part in learning with a creative activity, which leads to their best academic achievement and creative learning as well.

Learning the English language can be boosted with innovative methods of teaching. ICT has such a great scope of involvement embedded with varieties of verbal and visual presentations that support and enhance meaningful learning. It is an innovative attempt since its great network and versatility helps one to create many innovations in the field of education. Hence, there exists a great need for worthy research in this domain to find out the suitable or appropriate techniques and methods, including integration of the use of adequate ICT gadgets in teaching and learning which has made the teaching-learning process more meaningful. Hence, the investigator attempted to design and develop an ICT-based instructional Package (ICTIP) to impart English Language Teaching (ELT) to enhance the basic skills of listening, speaking, reading and writing (LSRW) through experimental method using Pre-test and Post-test equivalent group design at Jawahar Navodaya Vidhyalaya at Pondicherry region.

## Review of Related Literature

Educational research studies have established that the positive outcomes evolved using varieties of ICT resources that were experimented with in the education sector especially on the Teaching-Learning process. ICT became popular and has been introduced in many schools and various subjects. Teachers often consider ICT as an appropriate resource that is standardized and assists them to teach the school curriculum. However, the education sector has started working on the practical domain using Information Technology. It is a great transformation that helps teachers in improving and

making teaching easy and enjoyable even for complex and abstract tasks.

Bariş (2016), students who were taught using a video instructional package or an audio instructional package did better than students who were taught using standard classroom instruction. Alpaslan (2016), the influence of video projection and a power-point educational package resulted in better performance than the traditional technique of teaching. Shirley Ayonmike (2020) discovered that the influence of the online mode of instruction was more successful in the learning of motor skills and recommended that teachers incorporate the same online mode of education. According to Mohsen & Shafeeq (2014), instructors have a good attitude toward adopting new technologies, such as Blackboard, which acts as a structured E-Learning Platform for teachers who can study English or a foreign language (EFL). Oyeyemi & Daniel (2016) studied the impact of interactive multimedia on students' English language pronunciation skills.

The world of education is changing and it is towards the use of ICT. Teachers of English as a Foreign Language used ICT to enhance their teaching in a variety of ways, including PowerPoint and word processing, as well as language dictionaries and internet films (Sabiri, 2020).

Education has moved from just theoretical learning to creating information technology if not least knowing how to use them. Other teachers view ICT as a tool to handle complex tasks and with performance-based assessment. At present, it is visible that there is a strong relationship between the belief of a teacher and the use of ICT in the classroom. It is also opined that ICT helps students learn skills like communication, problem-solving and handling information better which have become essentiality of

today's age (Kozma, 2003).

The recent Covid-19 pandemic has revealed that many teachers opposed the usage of ICT in teaching and working with ICT. Literally, ICT is the only source that is communicating all kinds of information. Minimum use of ICT to get done with our work has become essential today. The role or responsibility of a teacher in the class is shifted or changed after the introduction of ICT in class (Kozma, 2003). Integration of ICT is made possible when students select the right technology and tools for getting information.

There is a huge demand from students for the integration of ICT in their classrooms. Students of today are smart enough; they understand the need and importance of ICT and want to be technology literate if not computer scientists. There is a huge gap in the usage of ICT between students and teachers. A student's thinking pattern when exposed to ICT changes and so, should be the mindset of the teachers of today.

Students all over the world have experienced the benefits of proper usage of ICT. Online classes have shown them a new dimension of using ICT. Earlier, limited children, as well as teachers were aware of the educational apps, but today both the teacher and student community are working smartly with these apps. On the other way, according to Kim, students who are exposed to ICT have a better ability to explore, identify and generate new ideas and acquire new skills. As the pragmatists opine, a student can learn concepts better when he/she practically does. It is the right of every student no matter where in the world to learn techniques which is the need of the 21<sup>st</sup> century and it is no longer acceptable for teachers to not implement ICT in education or shy away from it.

The future of a country is in the hands of its youth is a very famous saying, but it depends more on the training and education are given to youth in information and technology. The majority of the researchers noted that various governments and departments of education and educators are for the implementation of ICT in education and more in school education. There is a global need for children of the world to have access to computers and technology. ICT creates an open learning environment that is no longer restricted to the four walls of the classroom.

The impact of ICT on education, particularly on the teaching-learning process, is crucial and crucial to teach abstract ideas in all school subjects, including English Language Teaching, as evidenced by the research reviews. Teachers need to develop into educators of today by integrating ICT in their teaching.

## **Methodology**

### **Objectives**

1. To evaluate the effectiveness of the ICT Instructional Package (ICTIP) on teaching the English language among secondary school students.
2. To analyze the effectiveness ICT Instructional Package among secondary school students
3. To examine the effect of intervention after controlling the Pre-test scores of the Experimental and Control groups.

### **Hypotheses**

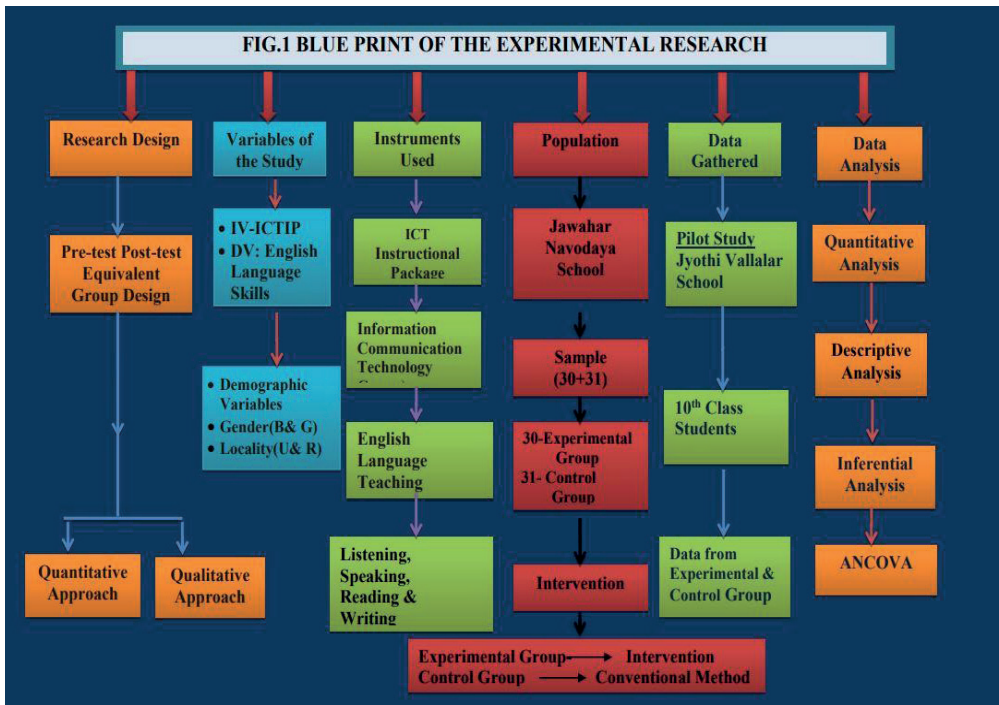
1. There is no significant difference between the pre-test scores of control a group and the experimental group with respect to LSRW skills.

2. There is a significant difference between pre-test and post-test scores of the control group and experimental group with ICTIP with respect to LSRW skills.

3. There is no significant effect of intervention after controlling the Pre-test scores of the Experimental and Control group.

## Research Design

Figure-1: Blueprint of the Experimental Research

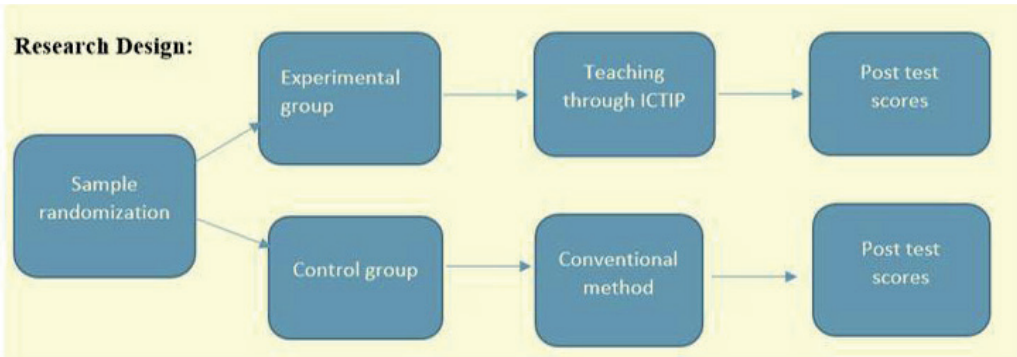


## Experimental Research Design

The intervention started with developing an ICT Instructional Package (ICTIP) in the form of activities covering verbal and visual, audio, video has been designed and developed for English language teaching (ELT) of 10<sup>th</sup> Class students, to improve the English

language skills like especially listening, speaking, reading and writing (LSRW) which has been measured before and after the intervention. ICT Instructional Package developed was administered in Jawahar Navodhaya Vidhyalaya residential School, Pondicherry Region using pre-test and post-test equivalent group experimental research design.

**Figure-2: Pre-test and Post-test equivalent group experimental design**



The present research studies conducted based on two groups were formed one experimental and one control group and the participants were 9<sup>th</sup> students. Raven has created a non-verbal culture-free group exam that is commonly used in educational settings to assess the non-verbal intelligence of literate and illiterate people in groups. It assesses a person's ability to comprehend meaningless data presented to him. The exam allows for the evaluation of a person's ability to engage in intellectual activities. This examination was created for people of all ages, regardless of their education, nationality, or physical education.

### **ICTIP Intervention and Treatment**

**Stage 1:** Raven's Progressive Matrix (RPMs) measures non-verbal intelligence. Investigators used this nonverbal standardized test to divide the two groups to ensure the homogeneity of the sample. Students were separated into experiment and control groups based on their performance, with odd numbers in one group and even numbers in the

other, resulting in homogeneity. The ICT English Language teaching module was implemented in the experimental group and the control group was not administered the module but taught through conventional teaching by the regular teacher. However, after the intervention, the control group was also administered the same ICTIP module as an ethical standard.

**Stage 2:** The two groups were tested for homogeneity before the experiment to prove that both experiment and control groups are in the same standard. An English proficiency (LSRW listening, speaking, reading and writing) test was administered before the Intervention for both the groups and the intervention was planned for 40 days and the same LSRW test was administered after the intervention for both the groups. Both experimental and control groups were tested after the intervention to study the effectiveness of the intervention (ICTIP) on English Language Teaching. The instrument used for data collection is a questionnaire consisting of profiling questions and English proficiency based on LSRW skills.

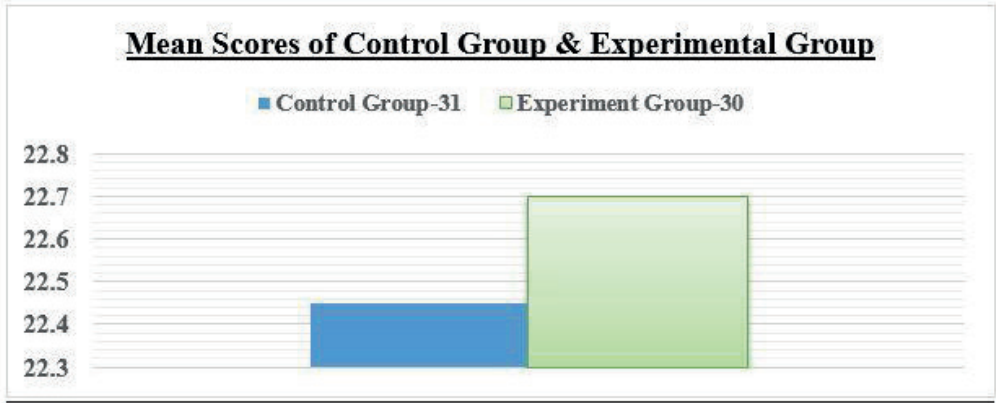
**Analysis and Interpretation of the results**

**H1: There is no significant difference between pre-test and post- test scores of Control group and Experimental group.**

**Table-1: Results of Control and Experimental Group in Pre-test and Post-test on ELT**

Particulars	Group	N	Mean	t	Sig.
<b>Pre-test-Listening</b>	Control Group	31	7.10	0.22	0.83
	Experiment Group	30	7.17		
<b>Pre-test: Speaking</b>	Control Group	31	4.03	1.10	0.28
	Experiment Group	30	4.37		
<b>Pre-test: Reading</b>	Control Group	31	7.03	0.93	0.36
	Experiment Group	30	6.80		
<b>Pre-Writing</b>	Control Group	31	4.29	0.25	0.81
	Experiment Group	30	4.37		
<b>Pre-test Total</b>	Control Group	31	22.45	0.35	0.73
	Experiment Group	30	22.70		

**Figure-3: Results of Control and Experimental Group in Pre-test and ost-test on ELT**



The data of Table 1 reveals, there is no significant difference between the pre-test scores of the control and experimental group on English Language Learning (ELT), including the LSRW listening (t=0.22), speaking (t=1.10), reading (t=0.93), and writing (t=0.25). The mean scores of the pre-test of the control group is 22.45, the

Experimental group is 30.16 and the obtained t value of post-test scores of the Control group and Experimental group is 0.35 at 0.01 level of significance. Hence, the null hypothesis is accepted and it is concluded that there is no significant difference between pre-test scores of the control and experimental group.

**H2: There is no significant difference between the Post-test of the Control group and Experimental group.**

**Table-2: Results of Post-test on ELT of both Control and Experimental Group**

Dimension	Group	N	Mean	t	Sig.
<b>Post-test: Listening</b>	Control Group	31	6.97	2.22	0.03
	Experiment Group	30	7.83		
<b>Post-test: Speaking</b>	Control Group	31	4.81	2.63	0.01
	Experiment Group	30	6.10		
<b>Post-test Reading</b>	Control Group	31	7.03	2.18	0.04
	Experiment Group	30	7.87		
<b>Post-test Writing</b>	Control Group	31	6.06	8.45	0.00
	Experiment Group	30	8.37		
<b>ELT Post-Test Total</b>	Control	31	24.87	4.88	0.00
	Experiment	30	30.17		

**Figure-4: Results of the Post-test on ELT of both the Control and Experimental Group**

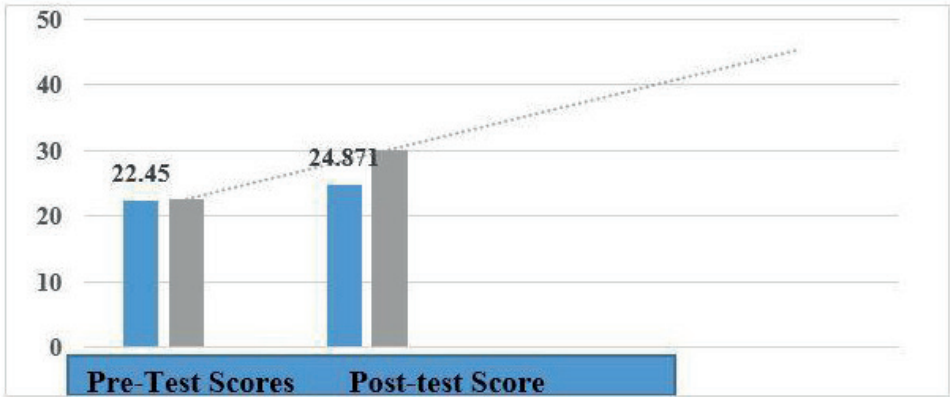


Table 2 reveals that there is a significant difference between post-test scores of control and experimental groups on English Language Learning (ELT) including the LSRW listening (t=2.22) speaking (t=2.63), reading (t=2.18) and writing (t=8.45). The mean scores of post-tests of the control group are 24.87, the Experimental group is 30.16 and the

obtained t value of post test scores of Control group and Experimental group is 4.88 at 0.01 level of significance. Hence, the null hypothesis is rejected and it is concluded that there is an increase in the total performance of the experimental group after teaching through ICT Instructional Package.



**H3: There is no significant effect of intervention after controlling the Pre-test scores of the Experimental and Control groups.**

**Table-3: Controlling the Pre-test scores of Experimental and Control groups using ANCOVA test**

Categories	Listening		Speaking		Reading		Writing		Total	
	F	Sig.	F	Sig.	F	Sig.	F	Sig.	F	Sig.
<b>Corrected Model</b>	3.59	0.03	3.67	0.03	3.08	0.05	35.06	0.00	12.52	0.00
<b>Intercept</b>	24.39	0.00	27.11	0.00	17.36	0.00	190.49	0.00	24.54	0.00
<b>Pre-test Score (Co-variate)</b>	2.16	0.15	0.48	0.49	1.39	0.24	0.00	0.97	1.17	0.29
<b>Post-test Control and Experimental group</b>	4.82	0.03	6.22	0.02	5.33	0.03	70.03	0.00	23.34	0.00

The difference of post-test scores of the control and experimental group was re-examined after controlling for the effect of pre-test scores or prior proficiency in order to cross-validate the results. From table 3, it can be inferred that there is no main and interactive effect of pre-test scores of English Language Learning treated as a covariate and as the significance for all the F statistics are above 0.01. This proves that there is no prior English Language learning that affected further obtained results. However, the significant difference observed in the post-test was essentially due to the effect of the intervention of the ICTIP module. The total 'F' value revealed at 0.05 level of significance shows that there is a clear difference between the post-test scores of the control group and post-test of the experimental group.

**Results and Discussion**

**Finding-1:** There is no significant difference between the pre-test scores of the control and experimental group on English Language Learning (ELT),

including the LSRW listening (t=0.22), speaking (t=1.10), reading (t=0.93), and writing (t=0.25). The mean scores of pre-tests of the control group are 22.45 and the Experimental group is 30.16 and the obtained t value of post test scores of Control group and Experimental group is 0.35 at 0.01 level of significance.

**Finding-2:** There is a significant difference between post-test scores of the control and experimental group on English Language Learning (ELT), including the LSRW listening (t=2.22), speaking (t=2.63), reading (t=2.18), and writing (t=8.45). The mean scores of post-tests of the control group is 24.87, the Experimental group is 30.16 and the obtained t value of post-test scores of the Control group and Experimental group is 4.88 at 0.01 level of significance which infers the intervention has greatly influenced the scores of post-test of the experimental group. Students' academic achievement scores improved after teaching through the ICT Instructional Package in all dimensions of Listening, Speaking, Reading, and Writing.

**Finding-3:** The difference of post-test scores of control and experimental group was re-examined after controlling for the effect of pre-test scores or prior proficiency in order to cross-validate the results inferred that there is no main and interactive effect of pre-test scores of English Language Learning treating as a covariate and as the significance for all the F statistics are above 0.01. This proves that there is no prior English Language Learning that affected further obtained results.

### **Educational Implications**

The world sensitized the importance of ICT in teaching and learning. ICT was treated as a supporting aid. Schools are far from ICT implementation and effective use the world over and mostly in developing and underdeveloped countries (Kozma, 2003). Addressing ICT integration in education is vital. Studies have shown that students who have access to computers at home perform much better in academics than those who do not have access to it. In the present time, it is playing an important role in all the levels and streams of Education. The present experiment is valid in the present Covid scenario. The study gives a positive motivation with a valid statistical analysis. Based on the study, it is derived that ICTIP has helped to improve academic performance and it is also proved that all four language skills listening, speaking, reading, and writing have a significant improvement in the experimental group than the control group. Studies conducted in different parts of the world have opined that it takes a long way to achieve ICT integration in education. The use of Technology in schools is more for personal than learning in schools both by teachers and students. Integration of ICT in school education needs a long time and sustained development. ICT integration has been the primary goal of many educators the world over with a

long-term goal of creating students who are lifelong. The necessity created since the pandemic has created a deadly environment and it has become risky to step out. In these conditions present study strengthens the usage of ICT for teaching and learning. The saying is true; necessity is the mother of invention. Teachers of older generations who were not having expertise also started learning and using the ICT in teaching. It is believed that the confusion arising regarding the effectiveness of ICT on teaching and learning the English language will be clarified with this study. Hence, the study is significant in teaching and learning in present days and strengthens online teaching. The objectives of teaching the English language are achieved through ICTIP.

### **Conclusion**

National Mission for Education through Information Communication Technology is serving to leverage ICT potential in the Teaching-Learning process which invariably benefits all the stakeholders of the educational system breaking the border and boundaries, especially during this unprecedented Covid-19 pandemic. This experiment was carried out during July-2020 when the Covid pandemic was not affected as it was in the second wave. Based on experiments conducted and the statistical analysis, it is observed by the researcher that teaching through ICTIP has a significantly positive effect in the English language teaching and learning. Education is being shaped in a novel way by a technology-driven approach. Language teaching & learning have been made incomparably easier with the help of various software and programmes. Teachers no longer have control over the classroom; instead, the focus has shifted to the students (Sabiri, 2020). Teachers shall always integrate the ICT-based resources to improve the language skills, especially at school levels.

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## Online Resources

<http://imanagerenglishlanguageteaching.blogspot.com/2013/03/>

[http://irep.iium.edu.my/48184/2/3-3-2-Proceedings\\_of\\_the\\_3\\_ICLLCE\\_KL\\_2015.pdf](http://irep.iium.edu.my/48184/2/3-3-2-Proceedings_of_the_3_ICLLCE_KL_2015.pdf)

<http://marianrosenberg.wiki.westga.edu/file/view/ErtmerPTeacherBeliefs.pdf>  
<https://ciet.nic.in/pages.php?id=brochure-on-ict-initiatives&ln=en>  
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