Learning Through Technology: The Indian Experience

Sangeeta Srivastava, Sardar Vallabhbhai Patel Vividhlakshi Vidyalaya, Shri. T.P. Bhatia College of Science, Mumbai
Indu Garg, University of Mumbai, Mumbai

The Asian Conference on Society, Education & Technology 2015
Official ConferenceProceedings
Introduction

India is going through a demographic transition and has to focus on education which will develop a skilled workforce ready for employment. The children in the age group of 10 – 14 years are important as they will soon enter the world of work to become the primary human resource and contribute to economic development of the nation.

Education in India is provided both by the public as well as the private sector. Funding comes from the government or the private providers. However, most of the schools in India are funded and run by the government. Each state government has a board that decides the schools syllabi and conducts examinations. There has been progress in terms of increasing enrolment in schools but the public system lacks infrastructure, insufficient funding, shortage of staff and facilities. Due to managing large numbers quality of school education suffers. This is the challenge teachers and educators face in preparing citizens for the changing landscape of the 21st century. Another challenge faced by the educators is the demand for English education which is seen as the road to a better life and prosperity. Parents coming from low socio economic status too demand English education for their wards.

It is observed that from the early years beginning from primary education, most of the students acquire information via rote learning with little emphasis on practical application of the subjects taught. A single teacher teaches a large classroom with the help of blackboards, and supporting text books which is not the ideal setting for students to ask questions, explore alternatives or learn by experience. By the time students enter secondary education they resort to use of old question papers, privately written help books, work-sheets and teacher prepared notes to memorize answers and succeed in entrance examinations and gain entry in institutes of higher education. It is a common sight to see children in schools taking down notes in ‘class work’ books, and then regurgitate the same in ‘home work’ books and then in their examination. The emotional turmoil touches entire families as young people struggle to survive and ‘win’ during their K-12 years. This kind of education does not guarantee any enhancement of quality of life.

With the advent of technology and its capabilities if incorporated in the teaching learning processes can be a game changer in the present scenario mentioned above. Information and communication technology (ICT) can offset the effects of poor quality of education. Efforts have been made in this direction too.

The Central Advisory Board of Education (CABE) unanimously adopted the National Policy on ICT in School Education (NPISE), on June 6, 2012, at its 59th meeting held in Delhi. It envisaged the introduction of a phased ICT literacy program in all primary and secondary schools country-wide within the Eleventh (2007-12) and Twelfth (2012-2017) Five Year Plan period. Although government has taken a proactive role by making a policy to include ICT, very small steps have been taken to look at the classrooms where large number of students is educated.

The researchers felt that in order to meet the demands of the society if ICT is actively used by teachers to teach English in secondary schools, especially in classrooms where there are a large number of students, it will help the students in enhancing their achievement as well as self worth. There’s unanimity among the educationists that
technology-based solutions are the key to revitalizing India’s education system in general and learning of English in particular thereby making its future generations globally competitive. The challenge is, how effectively and quickly digital technologies can be integrated into the education system. The researchers were of the view that use of technology to teach and give opportunity for practical application in the learning of English would enhance attainment in the language.


English in India today is a symbol of people’s aspirations for quality in education and a fuller participation in national and international life. The current status of English stems from its overwhelming presence on the world stage and the reflection of this in the national arena. The opening up of the Indian economy in the 1990s has coincided with an explosion in the demand for English in our schools because English is perceived to open up opportunities (Das 2005)\(^\text{11}\).

The visible impact of this presence of English is that it is today being demanded by everyone at the very initial stage of schooling. The demand for English may well peak by 2050, with more people having learnt it already. A 2003 National Council for Educational Research and Teaching (NCERT), New Delhi, study shows that English is introduced in Std. I or Std. III by 26 states or union territories out of a total of 36 states and union territories in India. Only seven states or union territories introduce it in Std. IV or Std. V (Khan 2005)\(^\text{12}\). Private English medium schools may differ in the learning opportunities they offer, and this may be reflected in differential language attainment. (Nag-Arulmani 2005)\(^\text{13}\) Traditionally, English was taught by the grammar translation method. In the late 1950s, structurally graded syllabi were introduced as a major innovation into the state systems for teaching English. The idea was that the teaching of language could be systematised by planning its inputs, just as the teaching of a subject such as arithmetic or physics could be. The emphasis thus shifted to teaching use of language in meaningful contexts.

Grammatical competence and communicative competence was introduced to signify this extra dimension. The attempt to achieve communicative competence assumes the availability of a grammatical competence to build on, and indeed the communicative method succeeds best in the first category of schools described above, introducing variety and learner involvement in classrooms where teachers and learners have confidence in their knowledge of the language. However, for the majority of our learners, the issue is not so much of communicative competence as the acquisition of a basic or fundamental competence in the language (Prabhu 1987: 10)\(^\text{14}\).

Achievement in English

Some of the factors of low achievement in English are imparting of limited knowledge, textbooks which are not sufficient to teach such a wide curriculum, blind use of rules, insufficient practice work, and absence of methodical approach in teaching.

In the present study, the factors considered to measure achievement in English are comprehension skills for prose and poetry, creativity in composition writing, analysis, understanding and summarizing of comprehension, concepts of grammar, vocabulary,
proper sentence construction and ability to appreciate literature in true sense. The techniques like group projects, group presentations, group discussions and brainstorming are used to teach the subject.

Since achievement in school subjects is important for a student. The researcher has studied achievement in English. Achievement is all about what learner can actually do when they have finished a course of study. Academic achievement refers to success in academic tasks as measured by and external referent such as teacher ratings, self-reported grades, grades from school records or standardized achievement tests. In the present study academic achievement is seen as improvement in the subject of English indicated by marks obtained in tests.

**Information and Communication Technology (Ict)**

ICT is described as computer applications with the addition of communication tools such as e-mail, chat-rooms and other internet resources. Information and communications technology or ICT tools are the means which enable students to communicate, collaborate, assimilate and exchange information, such as computers which is used for internet/web, e-mails, word processor, spread sheets, blogs, overhead projectors, LCD projectors, multimedia, cell phones and others.

Technology available in classrooms today range from simple tool based applications such as word processors, to online data, to handheld computers, closed circuit television channels and two-way distance learning classrooms. Even the cell phones that many students now carry with them can be used for learning. (Prensky, 2005)

Various technologies deliver different kinds of content and serve different purposes in the classroom. For example, word processing and e-mails promote communication skills, database and spreadsheet programs promote organizational skills and modeling software promotes the understanding of Science and Math concepts. It is important to consider how these electronic technologies differ and what characteristics make them important as vehicles for education. Technologies that can be used in classrooms today range from simple tool-based applications (such as word processors) to online repositories of scientific data and primary historical documents, to handheld computers, closed-circuit television channels, and two-way distance learning classrooms. Even the cell phones that many students now carry with them can be used to learn.

Each technology is likely to play a different role in students' learning. Rather than trying to describe the impact of all technologies as if they were the same, there is a need to think about what kind of technologies are being used in the classroom and for what purposes. Two general distinctions can be made. Students can learn ‘from’ computers-where technology used essentially as tutors and serves to increase students basic skills and knowledge; and can learn ‘with’ computers—where technology is used a tool that can be applied to a variety of goals in the learning process and can serve as a resource to help develop higher order thinking, creativity and research skills (Reeves, 1998); and (Ringstaff & Kelley, 2002).

With this in view an experiment was conducted to study whether use of technology improves achievement in English.
Need for the Research

In the past few decades there is a vast change in the educational scenario all over the world. Information is freely available in huge online databases. A person who just knows facts does not have any value. An employee who can interpret and analyze information to make forecasts, create innovative products and services or plan better will be highly valued. Geographical distances have shrunk with the telecommunication revolution. Soft skills such as superior oral and written communication, the ability to collaborate effectively with a diverse team and a project oriented approach will be needed to succeed in studies and career. Social networking sites and freelance sites have launched the careers of scores of entrepreneurs, freelance designers and innovators. A person's career will only be limited by their imagination and their willingness to work hard. These results in generations of youth who enter institutes of higher education armed with report cards and certificates. They pass out of colleges and professional institutes with degrees but not with employable skills. Employers bemoan the lack of employable skills among the educated youth of the country.

Today it is the need of the hour that every student is technologically literate by the time he/she finishes the eighth grade, regardless of race, ethnicity, gender, family income, geographic location, or disability, this will help the student to brace himself to meet the challenges of secondary education and then they can become competent enough to opt for and cope up with the challenges of higher education. Numerous businesses, corporate and nonprofit organizations have developed policy reports and frameworks describing the need to improve children's higher-level technology related skills.

From the review of the related literature several gaps are observed. Although there are numerous researches/studies conducted which speak volumes about effect of ICT on achievement of students, there are hardly any study done that has designed specific ICT tools based teaching programme for secondary school students and study its effect on their academic achievement, learning abilities and self-esteem. The researcher has experienced that students coming from low economic background face a lot of difficulty in achieving even an average academic level. The classroom situations cannot help them much in overall improvement, as the teachers are busy with tests and exams to be conducted throughout the year and timely completion of syllabus. With practically no family support and help, these students fare poorly in exams and many drop out before completing their tenth grade and very few go for higher education.

The schools today do provide computer technology and teachers are using the same to teach, but there is a need to have a specifically designed framework to implement these methods in a planned and consistent manner. There is also a need to study that whether the ICT tools used in teaching do have an impact on the academic improvement of students or not? Does the use of technology in teaching have a positive effect on the learning abilities of students or not? Whether the use of various ICT tools in classroom also enhances the self-esteem of the students or not? Therefore the researcher was interested in conducting an experimental study to find the effect of ICT tools on the academic achievement, learning abilities and self esteem of Std. X students with two teaching subjects: English and Geography.
The researcher designed a teaching programme based on ICT tools, which would reach every child in the classroom. The ICT tools used were to ensure that the syllabus delivered through interactive methods help each and every student to participate actively. It is required that the teacher is not only technology savvy but also develops leadership skills. This will help schools to cope up with the rapid rate of change that is required to use technology.

The Study
The present study investigates the effect of information and communication technology (ICT) tools on the achievement of students of Std. X in the age group of 14 to 15 years in the subject of English.

Design of the Study
The quasi-experimental method has been used in the study. The experiment was designed as the pretest and posttest non-equivalent group design described as follows:

\[
\begin{array}{c}
O_1 & X & O_2 \\
O_3 & C & O_4 \\
\end{array}
\]

Where, \(O_1\) and \(O_3\) = Pre-test Scores; \(O_2\) and \(O_4\) = Post-test Scores
X: Experimental Group (treatment given) and C: Control Group (no treatment given)

The experimental and control groups were naturally assembled groups such as intact classrooms, which were similar. The difference in the means of pre-test and posttest scores are tested for statistical significance for both within and between experimental and control groups. The treatment was conducted on the experimental group and no treatment was given to the control group.

The respondents in the study were students of Std. X. of the two schools who gave permission to conduct the experiment. It was ensured that both the schools were similar in terms of the schools being co-educational, the locale, socio-economic status of the students,……. The researcher randomly assigned one school as experimental group and the other as control group. The sample size in experimental group was 73 and in the control group 75. The total sample consisted of 148 students. Intact classes of students of Std. X were included.

The academic achievement questionnaire for English was developed by the researchers.

An ICT Tools Based Teaching Programme (Treatment) using ICT tools was developed by the researcher. The programme included different teaching-learning strategies that were designed to ensure that it tested the students’ knowledge and understanding of the subject. To develop the ICT tools based teaching programme the teaching content was obtained from the available literature and researches done in past. With the in-depth study of the different aspects to be acquired in English, the researchers conceptualized the topics which were considered necessary for developing the achievement of students in English.
The selected topics were taught using different interactive methods of teaching. The rationale for selecting different interactive methods was to create interest among the students in subjects. Direct experiences were provided by conducting activities. The duration of treatment was approximately 30 hours spread over five weeks, including the pre and post testing in both experimental and control group. The control group was not given any treatment. They were taught the same topics, using traditional method of teaching, in regular classrooms by their teachers, during the same period.

After obtaining the data from the experimental and the control groups it was described by using descriptive statistics such as the measures of central tendency, variability, and graphical representation. Inferential statistics used was t-test to test the hypothesis and Wolf’s formula to estimate the effect size of the treatment.

**TESTING OF HYPOTHESIS 1**

**Hypothesis 1** states that there is no significant difference in the pretest scores of Std. X students in the experimental and control group on academic achievement in English.

Table 1 gives the t-ratios of the pretest scores of experimental and control group on academic achievement in English.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t-ratios</th>
<th>p values</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement in English</td>
<td>Experimental</td>
<td>73</td>
<td>28.64</td>
<td>7.04</td>
<td>-0.50</td>
<td>0.62</td>
<td>Not significant</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>75</td>
<td>28.16</td>
<td>4.37</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Findings and Conclusions**

From table 1 it can be seen that the obtained t-ratio for academic achievement in English is greater than p value of 0.05. Therefore the null hypothesis is accepted. It can be concluded that there is no significant difference in the pretest scores in the knowledge and understanding in English of the students in experimental and control groups.

It can be said that before the experiment began, both the experimental and control groups did not differ in their academic achievement in English. This means that at pretest level both the groups had knowledge and understanding of the subject to the same extent. Hence, it was assured that both the groups were equal before conducting the treatment i.e. the ICT tools based teaching programme.

**Discussion**

The reason for this is that students in both, experimental and control groups came from co-educational English medium schools. Both the schools followed the same syllabus as prescribed by the Government of Maharashtra State. The teachers
teaching in both the schools had similar educational background in terms of qualifications approved by education department of Maharashtra State. The students in these two schools came from more or less similar socio-economic background and belonged to the same region of western suburbs of Greater Mumbai. The teaching pattern followed in both the schools was similar. Traditional way of teaching was followed and students were not exposed to ICT tools in teaching. The classrooms had a large number of students, approximately seventy students in each class.

This indicates that at the pretest level both the groups were having knowledge and understanding of English subject to the same extent. Hence, it assured that both the groups were equal before the intervention of the treatment i.e. the ICT tools based teaching programme designed to give inputs in the subject of English.

**TESTING OF HYPOTHESIS 2**

Hypothesis 2 states that there is no significant difference in the posttest scores of Std. X students in the experimental and control group on academic achievement in English.

Table 2 gives the t-ratios of the posttest scores on the academic achievement in English and Geography, learning abilities and self-esteem for experimental and control group.

**Table 2**
Differences in Posttest Scores on the Academic Achievement in English for Experimental and Control Groups

<table>
<thead>
<tr>
<th>Variables</th>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t-ratios</th>
<th>p Values</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experimental</td>
<td>73</td>
<td>34.66</td>
<td>6.39</td>
<td>6.08</td>
<td>0.00</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>75</td>
<td>29.03</td>
<td>4.74</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Findings and Conclusions**

From table 2 it can be seen that the t-ratios are significant at 0.05 level for academic achievement in English. The p value is less than 0.05. Therefore the null hypothesis is rejected. It is thus concluded that there is a significant difference in the posttest scores on the academic achievement in English of the experimental and control groups.

These findings indicate that there is a significant difference in the posttest scores in the academic achievement in English of the experimental and control groups. From the mean scores obtained on the post test are greater for the experimental group. Thus it can be said that the treatment in the form of ICT tools based teaching programme given to the experimental group was effective.
Discussion

The students from experimental group improved in their academic achievement in English as compared to the control group. The ICT tools based teaching programme in English subject included group activities with the help of group discussions, use of school website for emails and writing letters, and giving explanations through power point presentations using LCD projectors. Students gave feedback to the teacher/researcher through emails and short messaging through mobile phones about the extent to which they enjoyed this method of teaching. Some students even expressed their view that they would like to learn other topics also using ICT tools. The teaching began in the computer lab where each student was at the computer terminal and the teacher helped each one to create a personal email address. The teacher also explained with the help of computer and LCD projector in the lab how to send the email and gave her personal email address to them. They were then instructed to respond to the teacher regarding the lessons and discussions after each lesson. Wikipedia was used to discuss the related matter of the prose and poetry lessons, encouraging group discussions, debates and extempore speaking.

Students were motivated to do the home assignments by going to the internet and making projects using articles of news through internet and newspaper. Interactive method of teaching was used and students were asked to prepare group presentations wherein each member of the group had a role to play. Smart boards as a teaching resource to explain several topics in grammar were used for teaching. The teacher/researcher ensured that each and every student wrote emails and send feedback to her as an assignment. Those who did not have access to computer/internet at home were given extra time in school to access internet and write mails. This increased a bonding between the teacher and the taught and there was an increased enthusiasm among the students on receiving the replies through the emails from the teacher. This appeared to have had an impact on their motivation and hence improvement in scores is seen.

TESTING OF HYPOTHESIS 3

Hypothesis 3 states that there is no significant difference in the pretest and posttest scores of Std. X students in the experimental group and the control group on academic achievement in English.

Table 3 gives the t-ratios of the pretest and posttest scores on the academic achievement in English for experimental and control groups.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Experimenta l Group</th>
<th>Scores</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t-ratio</th>
<th>p value</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement in English</td>
<td>Pretest Scores</td>
<td>7</td>
<td>3</td>
<td>28.64</td>
<td>7.04</td>
<td>5.41</td>
<td>0.00</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td>Posttest</td>
<td>7</td>
<td>3</td>
<td>34.66</td>
<td>6.39</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Findings and Conclusions

From table 3 it can be seen that for experimental group the t-ratios for the academic achievement in English is significant at 0.05 level and p value is less than 0.05. Therefore the null hypothesis is rejected. Thus, it is concluded that there is a significant difference in the pretest and posttest scores on the academic achievement in English of the experimental group. This achievement can be attributed to the teaching programme that was conducted in an interactive way, using ICT tools. Each student was able to use the technology to understand the concepts. Thus it can be said that the ICT tools based teaching programme given to the experimental group was effective for teaching of these two subjects.

For the control group t-ratio of the academic achievement in English is not significant and the p value is more than at 0.05. Therefore the null hypothesis is accepted. Thus, it is concluded that there is no significant difference in the pretest and posttest scores on the academic achievement in English of the control group.

### Discussion

The students from experimental group improved in their academic achievement in English as compared to the control group. It can be thus, concluded that there was a significant effect of treatment on experimental group. The intervention in the form of ICT tools based teaching programme did enhance the achievement level of students of the experimental group. Thus it can be said that the treatment (ICT tools based teaching Programme) given to the experimental group was effective.

### Differences in Experimental And Control Groups Gain Scores in Achievement in English

Hypothesis 4 states that there is no significant difference in the gain score (Posttest-Pretest) on academic achievement in English of experimental and control groups.

Technique used: t-test

Groups: Std. X students in the experimental and control groups

Gain scores are the difference between post and pretest scores. Table 4 gives the gain scores (Pretest-Posttest) on the academic achievement in English for experimental and control groups.
Table 4
Gain Scores (Posttest-Pretest) on the Academic Achievement in English for Experimental and Control Groups

<table>
<thead>
<tr>
<th>Variables</th>
<th>Groups</th>
<th>Pretest scores</th>
<th>Posttest scores</th>
<th>Gain Scores</th>
<th>SD</th>
<th>t-Ratio</th>
<th>P Value</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Achievement in English</td>
<td>Experimental</td>
<td>28.64</td>
<td>34.66</td>
<td>6.02</td>
<td>6.39</td>
<td></td>
<td>6.08</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>28.16</td>
<td>29.03</td>
<td>0.87</td>
<td>4.74</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Findings and Conclusions
From table 4 it is seen that for gain scores of academic achievement in English of the experimental and control groups, the obtained t-ratio is significant at 0.00 level. The mean of the gain scores of the experimental group is found to be higher than that of the control group.

Discussion

Since the gain score of experimental group is higher as compared to the control group the experimental group has gained knowledge and understanding of the subject and the treatment i.e. ICT tools based teaching programme given to the experimental group was effective.

Estimating the Magnitude and the Effect Size of Treatment

In order to estimate the magnitude and the effect size of treatment on achievement in English Wolf’s formula was applied. The following criteria has been applied by for interpreting the results.

Table 5 gives the magnitude and effect size of treatment on achievement in English.

Table 5
Effect Size of the Treatment on Achievement in English

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Mean of Experimental Group</th>
<th>Mean of Control Group</th>
<th>SD of Control Group</th>
<th>Effect Size</th>
<th>Magnitude of the effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Achievement in English</td>
<td>34.66</td>
<td>29.03</td>
<td>4.74</td>
<td>1.19</td>
<td>Maximum Effect</td>
</tr>
</tbody>
</table>
Findings and Conclusions

The effect size of treatment on academic achievement in English is 1.19 which means there is moderate to high effect of treatment on academic achievement in English of Std. X students of experimental group. The treatment i.e. the ICT based teaching programme developed by the researcher to develop academic achievement in English of students of Std. X is effective.

Discussion

The maximum effect of treatment is seen on academic achievement in English. This indicates that the ICT based teaching programme has created enhanced the knowledge and understanding of English among students. The programme in the form of treatment has had maximum effect on the students’ achievement and they have gained the knowledge and understanding of the subject to a large extent. The interactive teaching methods, the activities conducted and the choice of ICT tools used by the teacher/researcher proved to be successful in improving the achievement in English to a maximum level among students.

Recommendations and Action Plan

The results of the present study have prompted the researcher to recommend certain actions that can be considered by all the stakeholders in order to move towards quality education of the young children.

The government agencies can ensure training programs for teachers to use and prepare ICT tools based teaching program throughout the year. This could be introduced as a mandatory component in the teachers’ training and education curriculum. Effective curricular frameworks can be designed to include ICT tools based teaching for students from preschool onwards. Public policies, supportive legislation and budgetary allocations should be made to facilitate the availability of infrastructure and equipments. Research in teaching and learning processes related to use of ICT tools should be encouraged and be an ongoing activity. The government has to ensure uninterrupted power supply throughout the country.

The school managements must provide for the participation and consultation of all stakeholders, the government, the parents, the students as well as future employers in decision-making processes for instilling importance of and fostering the use of ICT tools. Issues related to infrastructural facilities, curriculum modification and educational materials should be addressed. Regular monitoring and evaluation should be based on performance indicators specified in the implementation program. The personnel responsible should be made accountable for effective implementation of ICT based teaching at all levels.

Teachers’ status and their working conditions should be improved. Suitable and qualified teachers should be recruited and retained especially those who are willing to be involved in new and innovative learning processes. Training to teachers equipping them with the appropriate skills and materials to teach diverse student populations and meet the diverse learning needs of different categories of learners should be provided from time to time. through professional development programs
at the school level, pre-service training in ICT tools based teaching and instruction. Standardizations, focused spectrum management, engaging and mastering the internet need to be in place in all the educational institutions and the school managements have to ensure this.

On their part the teachers must acknowledge that ICT tools based teaching is the need of the hour, aimed at offering quality education for all and in keeping with the current times when technology cannot be ignored in education. For this the teachers must constantly update their knowledge and understanding of ICT tools based teaching. For this, they should participate in various national and international seminars, conferences, workshops on ICT tools in teaching organized by various recognized organizations to keep up with latest technology. Teachers must strengthen the links between schools and society to enable families and the communities to participate in and contribute to the educational process. They have to be self-motivated for training and upgrading themselves by investing in their time, efforts and resources for their own training in order to keep up with current trends as well as evolve methods and strategies to teach their subjects using ICT tools. At the same time teachers must also learn about the ill effects of over indulgence in social networking, video and other computer games and cyber crimes and laws related to internet and educate students about it.

The students should understand that use of different information communication technologies has become inevitable in learning, so judicious use of the same will help them to achieve success. Use of ICT can help access and disseminate electronic information like e-books, e-journals and retrieve required information within a short time. They can improve their learning by using different modern ICTs in the form of wireless networks, internet, search engines, databases and websites. Use of technology will allow students to collaborate and exchange information in a better manner and will help them to enhance their achievements.

**Conclusion**

The attitude that ICT tools based teaching is not an alternative but inevitability. If quality education has to be provided to all students then a positive attitude needs to be cultivated among all concerned agencies, government officials, policy makers, teachers and school managements.
References


Ringstaff, C., Kelley, L. (2002). The learning return on our educational technology investment. San Francisco: WestEd


Kulik (1994). Meta-analytical research to aggregate the findings from more than 500


PISA (2003). The new PISA benchmark study of the OECD. The Programme for International Student Assessment (PISA), a worldwide study by the ‘Organisation for Economic C-operation and Development(OECD) in member and non-member nations of 15-year-old school pupils' scholastic performance on mathematics, science, and reading, 2 rue, 75775 Paris Cedex, 16.

Marsh, H.W. (1986). Journal of Educational Psychology Copyright 1990 by the American 0663/90/$00.75 The Structure of Academic Self-Concept: The

Marsh/Shavelson Model, School of Education and Language Studies University of Western Sydney, Macarthur, New South Wales, Australia.

