Chapter 5
CONCLUSION

5.1 SUMMARY
Summary of the Introduction and the Related Literature

“If we have to stay ahead of the curve, as we must, we must be open to new ideas.”

Prime Minister Dr. Manmohan Singh

The dawn of the third millennium shines forth as an epoch of globalization. The era of technology and the information explosion in this scenario has led to radical changes in the nature of students, their needs and their expectations from the education system. Consequently, the new upcoming generations of students with such an extensive continuum of learning styles and backgrounds would no longer be quenched by the present modes of teaching. Although India is a technologically sophisticated country, yet the use of technology in academic context seems less impressive than in other industrialized countries. As the worthy President of India, Dr. Pratibha Patil said at the inauguration of the Silver Jubilee Celebrations of the IGNOU, “India has now emerged as a leader in IT and we must use its potential to the fullest, to spread education and knowledge.”

New communication technology has become a part of the broader ecology of life. Much of reading, writing and communicating are migrating from other environments (print, telephone etc.) to the screen. In such a context, one can no longer think only about how to use technology to teach language but also what type of language do students need to learn in order to communicate effectively via computer. This realization sparked an idea in the mind of the researcher to incorporate new information technology and technological tools into her teaching.

Modern technology can help enhance the quality of input, authenticity of communication and provide more relevant, useful and instant feedback. In particular, communication technology such as the Internet and satellite television has been found to be widely used as a way to bring authentic materials into the classroom, involve learners in more authentic communication with distant audiences and provide researchers the opportunity to better examine the language learning process. The use
of TELL also promotes the motivation level of the students and their autonomy. In the last 30 years, computer assisted language learning has gone through significant changes, as illustrated in Warschauer’s taxonomy of structural, communicative and integrative CALL in his book Network-based language teaching: Concepts and practice (Network 4-16). Computer technology itself has greatly influenced these developments and prompted innovative applications. It seems that yet again new opportunities for CALL are emerging in what is labelled Web 2.0 in the computer world (O’Reilly qtd.in Alm 29). The Web 2.0 tools like Blogs and Wikis are latest in a series of technological innovation for second language education. Although new in form, yet they contribute to a resurgence of emphasis on very old values of connection, collaboration, co-operation and community. TELL activities not only offer novelty in teaching but also allow each learner to work at his/her own pace.

Zhao suggests several advantages that are more directly related to language learning and teaching. According to Zhao, CALL materials help by 1) enhancing access efficiency through digital multimedia technologies, 2) enhancing authenticity using video and the internet, 3) enhancing comprehensibility through learner control and multimedia annotations, 4) providing opportunities for communication (through interaction with the computer and through interaction with remote audience through the computer), 5) by providing feedback, 6) by offering computer-based grammar checkers and spell checkers and 7) tracking and analysing student errors and behaviour. Although this list combines technical and pedagogical advantages (e.g. ‘authenticity’), it is clear that there is a broad range of potential areas where CALL materials can make a contribution (451-454).

Learner progress and test results can be stored electronically (and potentially automatically) and retrieved at any time, which is not only an organisational benefit for teachers and administrators but also potentially a pedagogic benefit for students.

The global popularity of the computer over the past decade has brought about innovative uses of the computer in education and in second language learning and teaching. Many studies affirm that learners consider computer as a useful tool (Johnson and Heffeman 66) to supplement in-class instruction (Kung and Chuo 32). Computer use is increasingly embedded in everyday life. It is not surprising to find a similar trend in the academic world. In the last decade, research in this field has scaled heights. There was also a major paradigm shift in the pedagogic and research focus of technology applications in language education recently (Alm 30; Keengwe...
—a shift away from traditional drill-and-skill computer-aided instruction (CAI) models toward multimedia, intelligent CAI, and integration models; a shift from Web 1.0 to interactive ‘Read-Write’ Web 2.0. Studies about applications of these newer models appeared more recently as well. For many educators who are familiar with emerging technologies, recent technologies like blogs and wikis “offer powerful opportunities for online collaboration” (Godwin-Jones 12). The new technologies have, in essence, created “social writing platforms” (Alexander 36) where the free and unfettered exchange of ideas can occur. Alm further clarifies the difference by using an example of a blog in comparison to a traditional webpage which illustrates the change from a top down to a bottom up environment. Webpages are static, referred to as pages, they are updated by a Webmaster and they allow no user input. The reader is an observer. Blogs on the other hand are dynamic, instead of a fixed page a reverse chronological post appears on top, they can be updated by the blogger and they allow for user input through comments. The reader is a contributor.

This new technological horizon has the potential to refocus college teaching from “covering the materials for the students” to “uncovering the material with the student” (Smith, Sheppard, Johnson and Johnson 88). In this new environment, students are actively engaged in the learning process, “reading, writing, discussing” as they learn (Stalheim-Smith 3). These technologies can significantly improve the quality and effectiveness of teaching and learning. This is now the “Read/Reflect/Write/Participate Web” (Richardson 133). These technologies may encourage writing and ultimately impact student learning.

The review of literature leaves no doubt that the use of technology promotes engagement, interaction, motivation, instant feedback, relevance, authenticity, participation, autonomy and collaboration and in other words, promotes language learning. A number of related empirical studies have been discussed in the literature review (chapter two).

**Summary of the Purpose**

From insights gained through the review of literature, the researcher realized that the growing interest in technology integration into language teaching is apparent. Not only are a number of ELT websites springing up around the world, but also almost every second International journal or conference in the field of ELT comprises technology as one of its major themes. Many studies on the use of TELL have been conducted by different researchers in different countries like the USA, the UK or
Australia, but this issue still remains unaddressed in India. No doubt, the reality of Indian schools and colleges is different from that of the developed countries, but what is common is, on the one hand, the same objective - to teach the same language, English and on the other hand, the same teaching medium - the Internet and computers. The existence of the Internet, with websites, Blogs and Wikis and email communication, with instant access and fast searches, with its variety of interesting, authentic, appealing materials in every sphere of life, creates enormous opportunities to make language teaching more realistic, lively and interactive. However, most of the studies have examined the use of only one element of technology and those regarding student perceptions have been largely concerned with the use of computer-mediated communication via e-mail or networking. (Beauvois Conversations 198-217; Kern 105-109).

These researchers have been involved in finding ways to empower learners to become better language learners with the advent of the internet. However no research has ever been conducted on the various uses of technology in Punjab Technical University, Jalandhar and its affiliated colleges where communication skills play a pivotal role in the placements of the students. So the researcher decided to take the challenge of creating interest and creating motivation in the students to improve their reading and writing skills with the use of technology at Baba Banda Singh Bahadur Engineering College, Fatehgarh Sahib.

Therefore the rationale for this research on the impact of TELL on reading and writing skills of the engineering students is not only because this area has not been dealt with earlier in India but also because of the reasons mentioned below.

It is found that many students across disciplines are not very good at communication and generally lack the proficiency they need to meet the growing demands of the required present day workplace. The Communication Skills course for students at this undergraduate level does not help them reach the required competence in all areas of language at the end of their graduation.

Another reason is that the students enter an engineering college after a two year pre-engineering course where English is undoubtedly a compulsory subject but its marks are not counted as a subject at the time of admission or in any entrance exam. So no importance is given to it by the students who are always busy preparing for their science subjects. Thus, they lose interest in learning the language.
Concrete efforts need to be made to prepare students for utilizing their communication skills in an effective manner. In the light of such growing necessity for specific course content, it is felt that teaching communication skills to the engineering students has to be done in an interactive and learner-friendly manner.

One of the major reasons that initiated this study is the researcher’s growing concern for the reading and writing performance of the students. Feedback from the delegates of various companies reflects that at the completion of their graduation, students end up with excellent technical skills, but lack in effective communication. The researcher has been teaching students who come from different areas (the capital city, urban, semi urban and rural) and from families with a different economic and social background. When she teaches these courses to the students, some learners show good writing and reading comprehension performance, whereas some of them have problems in communicating their ideas in writing. The presence of such variations inspired her to experiment with the use of technology in the Communication Skills Lab.

Engineers and scientists may be technically brilliant and creative, but unless they can convince co-workers, clients and supervisors of their worth, their technical skills will be unnoticed, unappreciated and unused. In a word, if technical people cannot communicate to others what they are doing and why it is important, it is they and their excellent technical skills that will be superfluous. From this perspective, communication skills are not just handy; they are critical tools for success, even survival, in “real world” environments”. (Huckin and Leslie A. Olsen 3).

The truth in this statement becomes even more pressing in view of the current increasing internationalization of trade, commerce and industry. As English has become the lingua franca of international relations, tomorrow’s engineers will need English language skills that are far above the skills that most engineering graduates have today.

Another reason is that improved English language skills will enable engineers to keep abreast of recent developments in engineering. This is important in a ‘life-long-learning’ perspective as it may enable engineers to develop the competence needed in new areas of engineering and for job opportunities in an international environment. It is equally important for engineering companies to have staff with
good English language skills. They not only make good representatives but may also become an important asset in meetings and negotiations with foreign companies. Offering engineering students the opportunity to develop adequate and comprehensive English language skills is increasingly becoming a necessity. Failure to do so is doing students a disservice as they will need these skills in their studies as well as in their future profession. Similarly, the use of authentic learning material may enhance their language acquisition and offer the students an opportunity to develop a language competence that they may further refine in their professional life.

By incorporating these latest web technologies in the ELT classes of the students of engineering colleges, their thirst to bare every thread of latest technology can be quenched. Further, the declining importance of Communication Skills as a subject in the professional colleges can be raised to a level at par with other technical subjects that excite the interest of students. Thus the research deals with the use of TELL and shows how its use can breathe new life into the teaching of English language to budding engineers.

The use of TELL and related tools has the potential to change the classroom experience. These tools reduce the boredom associated with learning a language in the classroom. They also promote integrative motivation to help students develop their creative writing skills, sense of ownership and get experience of the practical, legal and ethical issues of creating a hypertext document.

There are also para-linguistic factors that have a direct or indirect influence on the development of the learner’s reading and writing ability. These include environment related factors (social, economic/cultural, family background) as 70% seats are reserved in the college for rural quota and school related factors (books, qualification of teachers, class size, the use of technology, assessment method). For instance the results of the study conducted by Gupta (2006) show clearly that the learning environment in India plays a pivotal role in changing the attitudes of the learners by motivating and putting pressures on them to strive to meet the high proficiency level in English language demanded by the social milieu. However, in this context, an enhancement in the role of the learning environment in contributing to the language proficiency of the students might be gradual. Therefore, it seems plausible to focus on learner factors (learning strategies, motivation) that can be controlled in order to bring about a change in the language development of students.
At the undergraduate level a good skill of writing is crucial for the academic success of the student. This is because a student is required to take notes from lectures and secondary sources, write term papers, do class assignments, present reports on their laboratory or field work findings regularly and answer essay exams. In their final year, all students are required to produce a formal report as a partial fulfillment for the completion of their degree programme. All these writings are evaluated from the angle of the adequacy of the content, logical presentation of content, effectiveness of the language used, sound argumentation and the use of appropriate format.

Writing and reading skills are not only required by students to meet their academic requirements, but also to meet the requirements of the job market. At work places such as Telecommunication, Service Industries, Production Industries, Marketing, BPOs and in all nongovernmental organizations in India, English is used as a working language. It is also used as the official language of diplomacy, commerce and international contacts. The English language has become a bridge for communication between different cultures and economies in the globalization process.

Keeping the above given reasons in mind, a thirty two hour communication skills course in sixteen weeks is offered to all students during the first year programme in order to help them develop reading and writing skills required in both academic and professional life.

**Summary of the Findings**

The present study was a pre-test/post-test experiment/control group design. The purpose of this experimental study was to offer empirical evidence of the effect of TELL activities on the reading and writing output of engineering students. This investigation was necessary due to the absence of data concerning use of technology to improve the language skills of Indian students. So, the following research questions were posed:

1. Is there a significant difference in students' reading achievement due to TELL methodology?
2. Is there a significant difference in students' writing achievement due to TELL methodology?
3. Is there a significant difference between TELL users' and nonusers’ achievement in reading skills?
4. Is there a significant difference between TELL users' and nonusers’ achievement in writing skills?
5. Does the use of TELL enhance users’ level of motivation and interest towards language learning?

To find answers to these questions, 80 first year students of an engineering college were selected and randomly divided into two equal groups: an experimental group and a control group.

This study was conducted in six phases. In the first phase, a pilot test was run in order to validate and standardize the tests as a means of assessing the language proficiency of the engineering students.

In the second phase, a standardized and valid IELTS reading and writing test was administered as a proficiency test to the subjects of research in order to form three groups of subjects at three levels of proficiency, i.e., elementary, intermediate and advanced. The answer sheets gathered were rated objectively according to the answer key provided. Hence, students were placed at three different levels of proficiency on the basis of the scores obtained from the tests, the cut points were 50 and 75 percentile ranks. That is, those scoring higher than 75 percent formed the advanced group. Those scoring lower than 50 percent were labeled as elementary. The rest of the subjects were placed in the intermediate groups.

Following the guidelines outlined by Warschauer and Whittaker to optimally combine students’ needs and TELL (27-33), the researcher prepared a project for 40 students of the experimental group in the third phase. After taking the pre-test of the students, they were made to use their reading and writing skills with technological tools like blogs, wikis, ESL websites and interactive software. Apart from adding supplementary language activities, the researcher used the above mentioned technological tools to conduct the practicals given in the university curriculum. Integrating technology into instruction in the researcher’s class goes beyond merely changing the media for completing course tasks and delivering assignments. Instead, students were engaged in authentic learning projects (e.g., wikis, weblogs, webQuests, slide shows and survey productions) that are facilitated by the use of technology and they are involved in quite different processes than more traditional forms of paper-based research and writing. On the other hand, the students of the control group performed their practical work in traditional manner.

In the fourth phase, the students were again administered the IELTS reading and writing test. They took this test at the end of their semester. The general purpose
of imparting the test at this phase was to compare the achievements of the two groups on the pre and posttests.

In the next phase of the study, the mean scores of the students in the pre-test and the post test were compared in order to explore whether there is an improvement in the reading and writing skills of the participants. Then, the mean scores of the control group and the experimental group were compared to discover the effectiveness of the use of technology to improve the reading and writing skills of the participants. The t-test was run to assess the statistical significance of the comparisons and the .05 level of statistical significance was selected. Using SPSS 17.0, two main types of data analysis were used: (a) t-tests and (b) descriptive statistics. T-test was used to test these null hypotheses:

1. There is no significant difference in students' reading achievement due to TELL methodology.
2. There is no significant difference in students' writing achievement due to TELL methodology.
3. There is no significant difference between TELL users' achievement in reading skills and that of nonusers.
4. There is no significant difference between TELL users' achievement in writing skills and that of nonusers.
5. TELL activities have no effect on users' level of motivation and interest.

To elicit information about students' attitude towards TELL, in the last phase, the subjects of the experimental group were asked to fill in an anonymous questionnaire and then were interviewed by the researcher. Descriptive statistics was used for 5-point Likert scales investigating users' attitude towards and perception of the utility of TELL.

5.2 CONCLUSION

The results of the current study indicate that TELL is very effective and improves the reading and writing skills of engineering students. After teaching the students of the experimental group for a complete semester with technology, when the results of their pre-tests were compared with the post-tests, there was a statistically significant improvement in their reading and writing skills. Thus the results of the study reject the null hypotheses that there is no significant difference in the reading
and the writing results of the TELL users due to methodology. These results back up the research conducted in this field (Belz and Kinginger 632; Blattner and Fiori 21). They illustrate how computer technologies support meaningful educational experiences. Also Perez-Prado and Thirunarayanan (198); Cooper (54) suggest that students can benefit from technology-enhanced collaborative learning methods and the interactive learning process. Computer technology can be regarded as an educational tool supporting English Language teaching (Liang and Bonk 9). In fact, a wide range of electronic technologies have been developed to supplement second language teaching and learning (Liang and Bonk 10).

The t-test was again run to find the significant difference between TELL users' and nonusers' achievement in writing skills and the test rejects the null hypothesis by showing the significant difference between the writing achievement levels of students educated using Technology-Enhanced Language Learning (TELL) and the students who were taught using traditional language teaching methods. This confirms the findings of other researchers Zhao; Hung; Torlakovic and Akram. But when the same test was run to assess the null hypothesis there is no significant difference between TELL users' and nonusers' achievement in reading skills, the null hypothesis is accepted because the scores of the TELL users and non-users do not show a statistically significant difference. So it can be concluded that though there is an improvement in the reading scores of the TELL users when compared with the pre-test but the performance of the TELL users is not better than those of non-TELL users. Both of the groups showed equally good improvement. The results, thus, back up the studies conducted by Adair-Hauck et al. and Green and Youngs who concluded that technology-enhanced independent language learning is as effective as classroom instruction.

The answer to hypothesis number 5 is based on the feedback received from 40 students of the experimental group. The said feedback has been recorded from an interview and an attitudinal survey of the students regarding their experience with structured TELL activities. The survey demonstrates that the students are in the favour of TELL environment and activities. So it rejects the hypothesis that TELL activities have no effect on users' level of motivation and interest. From the research, it can be concluded that the use of TELL is very beneficial for language learning and students' attitudes toward TELL was positive, particularly if TELL applications were well-designed and used. Pedagogical relevance is an important driving force that can
both motivate students to undertake an activity and maintain their interest in it (Barr 24). 90% students felt that the TELL activities they performed in the laboratory were relevant to their course and prospective profession. Instant publishing on the internet, interaction and peer review and creation of an e-portfolio of student’s work through blog were reported to be the best features offered by Web 2.0 tools.

As demonstrated by the attitudinal survey data, the students responded positively to the TELL activities in general as well as to the use of blogs and wikis in particular. While over 80% of students stated that they enjoyed posting, reading their classmates’ posts and making comments on those posts, they almost unanimously stated that they liked having their classmates and the teacher write comments on their posts. A large majority also found blogging to be useful, motivational and effective for improving their writing.

From interviews with students it is found that three features of the web activities seem to make them an attractive and powerful curricular component: 1) their accessibility beyond the limits of the traditional classroom, 2) the personalized, student-centered nature of the interaction that they facilitate and 3) their capacity for motivating students to work autonomously (whether alone, in pairs or small groups) to consider, produce and react to more content more frequently than a teacher might expect. These features combine to make the use of technology a highly productive, communicatively meaningful and effective approach to help students refine and develop their language skills. Furthermore, the findings suggest that the use of technological tools provide a dynamic forum that fosters extensive practice, learning motivation, authorship, and development of learning strategies.

Views expressed by students in their interview state that the strategies used by the teacher (constructing a web page with links to recommended sites, instructing students in online navigation, introducing the content of the selected sites) were helpful and necessary. Satisfaction with the strategies that the teachers used and the content of the websites outweighed dissatisfaction due to difficulties accessing and using the assigned websites. Spending too much time and getting disconnected were perceived as the main problems for the students to complete their assignment. But the overall attitude of the students towards using TELL was positive. Additionally, the animation and multimedia effect of the task benefitted the students. This feedback of the students is in consonant with Nowaczyk (367) who holds that multimedia effect
proves very beneficial, especially for low achieving students, when it is used to
illustrate concepts and organize factual information.

The results of the survey are in line with that of Ayres (242); Al-Jarf (53);
Noriko (592); Chikamatsu (119); Bas (22).

5.3 SUGGESTIONS AND PEDAGOGICAL IMPLICATIONS

The purpose of this study is to assess the potential of technology for
improving language education in general and reading and writing skills of engineering
students in particular. It demonstrates that how effectively the students of an
engineering college use the tools under discussion to achieve the required proficiency
level in reading and writing skills without boredom and language learning anxiety.

The present study has practical implications for the development of ESL
curriculum, literacy policies and ESL content-based instruction in language teaching
and research in the area of technology and language education. First, policy makers
and the general public are interested in learning about the effectiveness of using
technology in language education because they need that information to help decide
future investment decisions regarding technology. Second, researchers and developers
are interested in knowing what has been done and what we already know about using
technology to enhance language learning. Such knowledge will hopefully guide their
further exploration and development. Third, language educators want to know what
works and what does not so that they can make informed decisions in selecting the
appropriate technology to use in their teaching.

These findings may further act as a catalyst for the use of technology in
education in India where technology for academic purposes is rarely used. But can be
used in a promising way as, for example, the state government of Punjab has taken a
number of steps to improve the quality of education and development of human
resources through ICT. (Human Resources perspective report 2010 titled “Technical
Education in Punjab-Gaining Momentum”). Punjab boasts of a strong technical
infrastructure with a large network of 82 AICTE approved engineering colleges,
producing approximately 28,000 engineering graduates every year (Figure 5.2).
Besides, Punjab-Training on Soft Skills (P-TOSS) programme is being run jointly by
the Department of Higher Education and Punjab Infotech and is aimed at upgrading
the skills of the youth in Punjab. It includes training on communication and soft skills
as well as basic IT skills to make them professionally ready and IT literate to step into
professional arena. The present project aims to scale up and support ongoing efforts of the Government of India and in particular, Punjab, to improve quality of technical education and enhance existing skills of the students to become dynamic, efficient, progressive and responsive to rapid economic and technological developments occurring at the local, state national and international levels.

**Figure 5.1** Growth of Technical Institutions and Student Enrolment in Punjab.

![Graph showing growth of technical institutions and student enrolment in Punjab](source: www.pbplanning.gov.in)

As today’s language learners are computer literate and ready to use computers to communicate with each other, the incorporation of technology in language classrooms may prove to be an important teaching and learning tool. The study is most relevant to ESL contexts such as India, where Internet infrastructure is developing at a fast pace and there are large demands for learning English. While NCERT in its National Curriculum Framework has also acknowledged that Educational Technology and ICT are significant tools to achieve constructivist learning in the new generation of Indian classrooms, it admits to a lack of detailed curricular ideas of how technology could or should fit in.

If the present study proves the definite effectiveness of TELL (technology enhanced language learning), a policy level of implication would be implementing TELL on a curriculum nationwide.
5.3.1 Suggested Framework and Classroom Activities

Technology nowadays plays a prominent role in the development of language learning materials, both as a tool in support of their creation and as a means of delivering content. The development of materials is still largely a practitioner-led practice, not always clearly informed by theories of learning (Chapelle 61).

Organizational and practical advantages offered by the use of technology can sometimes be sufficient reason to adopt a new technology. Among the many important questions arising during the process of the development of CALL materials, a key one is how to re-conceptualize language tasks in ways that enable us to provide the best opportunities for language learning. And a key way to meet this challenge suggested by Gruba can be found in the collective attempts to define tasks, write them and try them out with students; equally importantly there is a need to strengthen the links between theory, research and practice, and to acknowledge that the divide between CALL and non-CALL materials is disappearing (632-648). The researcher is hopeful that this will lead to a new understanding of materials development.

A Pedagogical Framework

Materials development, pedagogy and research in CALL have developed in such intellectual sophistication that its status as an academic field of study with the potential to provide optimal learning conditions has convinced Indian academicians that it has indeed great potential to change the course of ELT in the country (Mohanty, S. 68).

Young and Bush (2004) present a pedagogical framework encompassing a critical mindset, in which teachers of the English language arts can begin to conceive their own "best practices" with technology—a framework based upon their own needs, goals, students and classrooms, rather than the external pressure to fit random and often decontextualized technology applications into an already complex and full curriculum.

The main aspect of technology use is that there should be a genuine need on behalf of the teacher or her instructional goals that the technology fills, recognizing, too, the importance of enhancing a student's overall literacy. In other words, the power of the pedagogy must drive the technology being implemented, so that instruction, skills, content or literacy are enhanced in some meaningful way. Otherwise, the technology itself often becomes the content focus rather than the English language arts.
Teachers must avoid the temptation to use technology without understanding the pedagogical implications of using it. Zeurcher employed the metaphor of technologies as "power tools" that are not ends in themselves, but tools to be used to enhance the goals of the current project, much like a carpenter would use appropriate tools for a specific task (9). Thus the pedagogical goals take precedence; the technologies are thought of as another means of reaching those goals.

This is an important distinction; when technology is not tied to an authentic context and purpose, it will likely become a burden for users. Therefore, when one brings technology into the English language arts classrooms, one should do so with forethought—one should do so critically, with an explicit understanding of why one wants to do it and how it will affect students, instruction and curricular goals. Figure 5.2 represents the pedagogical framework for the decision-making process resulting in an informed and effective integration of technology applications into the classroom.

This framework can guide teachers in planning their use of technology. It was found was that the desired result, "thoughtful and informed use of technology" in a classroom, was dependent on teachers' implicit or explicit understanding of key contextual issues. This understanding includes their conception of English, knowledge of their goals as teachers without the presence of those technologies, an understanding of the social and pedagogical context in which they taught, knowledge of the available technologies, how to interact with them as users and teachers and an awareness of other issues that affect the teaching in that context. In short, the decisions that good teachers make every day when considering what to do, how to act and how to run a successful English language arts classroom are made explicit.

This framework is important in two ways. For experienced teachers, those who successfully integrate technology in their classes and have done so previously, this framework can give form to their thinking processes and help them make future decisions regarding technology, as well as help justify those decisions to others. For other teachers, those less experienced with technology, this framework can guide decision-making processes and serve as a professional development tool. Making these issues visible can also help classroom teachers resist pressure to implement uncritical applications of new technologies and allow them to negotiate for the appropriate time, support, training and resources they need.
Figure 5.2 A pedagogical framework for developing a critical approach to technology applications (Young and Bush 10)

Start with
**ESL Teacher’s Conception of English and Classroom Goals**
- Knowledge of...
- English Language Arts
- Effective strategies and activities
- Previous Projects
- Curricular Goals
- Literary*
- Instructional needs (not being met) **

**Additional Important Contextual Factors:**
- Students (Background and Culture; literacy habits in and out of school, with and without technology etc.)
- School environment and community
- Local State Standards and Objectives (English and Technology)
- A motivating discontent/need for considering for technology use**
- Others

**Available Technology Tools/Resources** *(Maximizing what you have and what you can get):*
- Types of tools: Hardware; Software;
- Online availability and access
- Support personnel
- Funds, possible grant opportunities etc.

**Technology Skills of Teacher:**
- As a user
- As a teacher
- As a collaborator
- As a researcher

**Other Issues:**
- Students as potential resources, teachers and avid users of technology
- Parents as resources
- Community support / Resources
- Others?

**Desired Results:**
- Thoughtful and informed use of technology
- Purposeful use of technology
- Supports and/or Enhances instruction
- Does not overshadow or complicate instruction
- Appropriate
- Reasoned

*The intent here is to consider development of student literacy in both print texts and media as well as critical, “translational / critical” and “digital” literacy.

**The key here is for the teacher to identify some aspects of her instruction/pedagogy that she finds unsatisfactory and/or would like to enhance or improve upon with the possible aid of technology.
Based on the result of the study, the researcher would like to suggest that the use of technology can be an alternative way to teach the language learner, especially to improve the students’ mastery in reading and writing skills. This result hopefully would motivate the language teacher to use technological tools in teaching English in the classroom, especially when teaching English to the engineering/professional students.

Many differences exist between CALL and traditional materials; however, the above brief review makes clear whether or not these differences translate into improved learning and teaching depends entirely on how the technology is implemented. It is also clear from the above that considerably more research is needed to establish how the differences impact (or not) learners and how teachers can best take advantage of this. Based on the pedagogical framework developed by Young and Bush, the researcher suggests following activities for the language students in general and for the students of an engineering college in particular.

The report on UNESCO Meta-survey on the Use of Technologies in Education in Asia and Pacific (8) says that the use of ICTs in education calls for a fundamental shift in the way content is designed and delivered, as well as for teamwork and collaborative practices.

**Sample Activity: Puzzle maker**

It is a regular vocabulary revision activity. It gives the students some investment in the work done in class and then there is the added challenge of being able to make a puzzle which can’t be solved by their colleagues.

<table>
<thead>
<tr>
<th>Aim:</th>
<th>To make and solve puzzles, word searches, word scramble</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus:</td>
<td>Vocabulary Revision</td>
</tr>
<tr>
<td>Level:</td>
<td>All levels</td>
</tr>
<tr>
<td>Time:</td>
<td>60 minutes</td>
</tr>
<tr>
<td>Sites:</td>
<td><a href="http://www.puzzlemaker.com/">http://www.puzzlemaker.com/</a></td>
</tr>
</tbody>
</table>

**Teacher Preparation**

- Show students how to use the website for different kinds of puzzles.
- Divide the class into groups of 2 students per team.
- Print a copy of each quiz when it is finished.
- Photocopy the quizzes and distribute among different groups to solve.
Steps for Students

• Ask students to brainstorm vocabulary for a particular area like business correspondence, communication, meeting, advertisement etc.
• Make a list of 15-20 words.
• Encourage them to personalize the title.
• Then following the guidelines on the website, prepare your puzzle.

Sample Activity: Blog

Students maintain a record of their practical work or assignments (like book reviews, mock-dialogue, presentations, mock-interview etc.) in the practical files. The researcher suggests recording such works on a blog created and owned by the student rather than on a traditional practical file.

<table>
<thead>
<tr>
<th>Aim:</th>
<th>To post practical class record on blog</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language Skills:</td>
<td>Writing</td>
</tr>
<tr>
<td>Level:</td>
<td>Intermediate and above</td>
</tr>
<tr>
<td>Time:</td>
<td>60 minutes</td>
</tr>
</tbody>
</table>

Teacher Preparation

• Explain students the advantages of using blogs over practical files.
• Demonstrate how to create a blog and publish posts on it.
• Familiarize them with all the features of a blog.
• Instruct students to update their blogs weekly.

Steps for Students

• Create a blog and personalize it using the template and the features of your choice.
• Give it a suitable title.

Sample Activity: Conducting Online Surveys

As a part of PTU’s Communication Skills laboratory curriculum, the students have to collaboratively perform a minor survey based project and after analyzing the results of the collected data, they have to prepare a formal report. Students generally collect data for the survey reports through questionnaire from around 40-50 people. Thus results in wasting lot of time, effort and paper. But the researcher would like to give an alternative method to conduct the surveys i.e. to conduct online survey.
through www.surveymonkey.com. It will not only reduce the tedium associated with it but also will save lot of time and effort. Online surveys are different from paper and pencil questionnaires, it has many advantages:

1. The administrator has greater flexibility in displaying questions. Questions can be displayed with:
   a. Check boxes
   b. Pull down menus
   c. Pop up menus
   d. Help screens
   e. Graphics

2. An online forum allows responses to be received more quickly from subjects.

3. This method is also cheaper to administer, as there are no costs associated with purchasing paper or other materials for printing. Postage costs are also mitigated.

4. Since data is collected into a central database, the time for analysis is subsequently reduced.

5. It is easier to correct errors on an online questionnaire, since the administrator does not have to reprint all the questionnaires for distribution. Data checking and verification are performed immediately while the respondent is taking the survey. All the data is captured electronically and no manual data entry is involved. This versatile web survey tool itself analyses the data and present it in the form of bar diagram, chart, graph etc.

<table>
<thead>
<tr>
<th>Aim:</th>
<th>Survey-based reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language Skills:</td>
<td>Reading, Writing</td>
</tr>
<tr>
<td>Level:</td>
<td>Intermediate and above</td>
</tr>
<tr>
<td>Time:</td>
<td>60 minutes</td>
</tr>
<tr>
<td>Web-Sites:</td>
<td><a href="http://www.surveymonkey.com/">http://www.surveymonkey.com/</a></td>
</tr>
</tbody>
</table>

**Teacher Preparation**

- Explain students the advantages of using online surveys.
- Demonstrate how the website works.
Familiarize them with all the features of the website like using variety of question types for the questionnaire and receiving automatic item analysis report.

Give them a deadline to complete the task of sending, collecting and analyzing the questions.

Steps for Students

- Select a topic for your survey based report.
- Create your account on the website and follow the directions in the tutorial to help you use it.
- Prepare a list of items for the questionnaire using variety of questions like yes/no, rating scale, drop down menus, multiple choice review items etc.
- Personalize it using the template and the features of your choice.
- Give it a suitable title.
- Send the survey link to gather data through an e-mail.
- Check the analyzed data on the website.

Sample Activity: Internet-based business Project

Internet-based simulations bring real-life contexts to the classroom by using authentic websites. They help learners to deal with situations they may come across at their professional platform. This type of activity is used to further the learner’s reading, information processing, planning and communication skills. Besides, it also addresses technology skills that are useful in the professional context.

<table>
<thead>
<tr>
<th>Aim:</th>
<th>Internet-based Simulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus:</td>
<td>Reading, Planning, Business English</td>
</tr>
<tr>
<td>Level:</td>
<td>Beginners and intermediate levels</td>
</tr>
<tr>
<td>Time:</td>
<td>2 hours</td>
</tr>
<tr>
<td>Sites:</td>
<td>Mentioned below</td>
</tr>
</tbody>
</table>

You work as an Executive officer for Systems Corp. Ltd., Chennai. Your boss, the Chief Executive Officer, is an American and has to go to Singapore and Malaysia to attend a conference and meetings from 20-22 June, 2010. The conference itinerary has been prepared by your company’s head office, but the logistics of the trip have
been left to you. Singapore's culture is also different from that of the USA. Look at your boss’s itinerary below and plan accordingly.

So, it’s your responsibility to get your boss to each meeting on time, organizing travel tickets and itineraries, to make him familiar with Singapore’s culture and to arrange suitable accommodation. Remember, he’s a heavy smoker and he needs Internet access in his hotel room. The following websites will help you:

**Travel**
- [http://www.makemytrip.com/](http://www.makemytrip.com/)

**Accommodation**
- [http://www.singaporehotels.net/](http://www.singaporehotels.net/)
- [http://www.malaysia-hotels.net/](http://www.malaysia-hotels.net/)

**Culture**
- [http://www.kwintessential.co.uk/resources/global_etiquette/singapore.html](http://www.kwintessential.co.uk/resources/global_etiquette/singapore.html)

<table>
<thead>
<tr>
<th>Date</th>
<th>Morning</th>
<th>Afternoon</th>
<th>Evening</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 June</td>
<td>10:00-12:00 Briefing, Singapore Office</td>
<td>12:00-14:00 Lunch, Directors</td>
<td>19:00 Dinner Meeting, Hotel Royal</td>
</tr>
<tr>
<td>21 June</td>
<td>09:00-13:00 Conference, NUS, Singapore</td>
<td>Free Time</td>
<td>20:00 Dinner, Kuala Lumpur Branch</td>
</tr>
<tr>
<td>22 June</td>
<td>09:30-11:30 Meeting, Georgetown, Penang</td>
<td>13:00-15:00 Lunch and Briefing, Kuala Lumpur Branch</td>
<td>Free Time</td>
</tr>
</tbody>
</table>

You will need to find flights, cabs and to work out which is the best way to get from conference to meetings. Note down prices and timetables. For accommodation, check online booking forms to ensure that rooms are available, and also note down the cost. You may also need to e-mail to ensure late check-ins, early check-outs and other specifics such as smoking rooms and Internet access.
**Sample Activity: Teaching Poetry Using Technology**

Wordle is a very useful tool that allows one to create word clouds from text. It’s very simple to use: just copy a poem, paste it into Wordle and it will sift through it and create clouds with the most commonly occurring words in the text. One can then edit the shape, the colours and the font in the cloud and even remove words one does not like by right-clicking on them.

Wordle can be used not only for poems, but short stories, news articles, history of literature, biographies of the authors and much more. These word clouds can be used in the class for an ice-breaking activity, compare and contrast, vocabulary improvement, text analysis and revision etc.

<table>
<thead>
<tr>
<th>Aim:</th>
<th>Teaching Poetry using Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus:</td>
<td>An ice-breaking activity and Poem Analysis</td>
</tr>
<tr>
<td>Level:</td>
<td>All levels</td>
</tr>
<tr>
<td>Time:</td>
<td>10 minutes</td>
</tr>
</tbody>
</table>

**Teacher Preparation**

- Choose a poem to be studied in the class.
- Copy and paste the poem into Wordle, creating a word cloud.
- Create a word document with the full poem and make enough copies.
- Print the word cloud on one piece of A4 paper and make enough copies or use projector.
- Ask students to look at the word cloud and try to ascertain the gist of the original poem.
- Half the class then explains to the other half what they think the poem is about.
- Hand out the copies of the original poems in full to the students and discuss the poem further.
Sample Activity: Webquest on the History of English Literature

<table>
<thead>
<tr>
<th>Aim:</th>
<th>Teaching History of English Literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus:</td>
<td>Writing, Speaking and Presentation Skills</td>
</tr>
<tr>
<td>Level:</td>
<td>All levels</td>
</tr>
<tr>
<td>Time:</td>
<td>1 Week</td>
</tr>
<tr>
<td>Website:</td>
<td><a href="http://www.bibliomania.com/">http://www.bibliomania.com/</a>, <a href="http://www.literature-study-online.com/">http://www.literature-study-online.com/</a></td>
</tr>
</tbody>
</table>

Teacher Preparation

1. Assign the students to a team of four members.
2. The team will decide upon a period of English literature to research.
3. Once the era has been decided, the team members will work on the following aspects of that era: Poetry, Fiction, Drama and major contemporary issues.
4. The students will research that aspect of English literature they have chosen from the given websites.
5. They will compile the information individually and then will come together to create a PowerPoint presentation.
6. Relevant pictures on each slide will help them to get extra credits.
7. Students will be evaluated on the basis of the accuracy and relevance of the content, the quality of PowerPoint presentation, grammar, spellings and choice of words.

5.3.2 Teacher Training

In the light of the above views and results, it becomes very clear that a teacher plays a very important role in integrating technology into teaching successfully.

Recent studies have especially shown the importance of support where learners access materials without the direct intervention of a teacher, whether in a self-access context (Reinders 215), or in distance education (White 254). Without such support, learners tend to use fewer or inefficient learning strategies, motivation levels tend to be low and dropout rates high. The results of Stepp-Greany (175) also reveal the importance of teacher facilitation in the language learning process through technology. Even in the present study the researcher felt that the students needed lot of instructions and consistent help from the teacher about technological tools like blogs and wikis and how to use them. This finding echoes Paulsen’s remarks about the importance of guiding the students in the use of Internet resources.
Kern states that "the degree to which computer-mediated communication promotes language and content learning, cultural awareness and critical reflection depends fundamentally on the teachers who coordinate its use" (118).

So, the review of the last decade’s literature has left no doubt that integrating technology into language teaching has become a need of the hour. What is a concern at the moment, at least in India, is that really few teachers of subjects other than Information Technology know how to use computers and the Internet to enhance and aid the teaching of their subjects. With big funds pumped into technology and the consistent efforts made by the Ministry of Education, the field which is neglected is teachers and teacher training in the field of ICT. It is more than likely that very soon the problem of technology, the lack of computers or bad or slow Internet connection will cease to exist, but the problem of inexperienced teachers, not confident in the use of computers and the Internet to teach their subjects, not aware of the possible merits technology could bring to their teaching, will be a serious obstacle on the road towards online learning.

To integrate computer technologies into education, it is not enough to simply purchase the technology and expect teachers to use it in the classroom. Investigations need to be carried out to develop an understanding of the best ways to use technology in teaching and learning. As Dwyer states, “if technology has the potential to really change children’s learning at school, teachers now need to reassess and redesign the way in which they teach so that computers can be used to their full potential” (qtd. in Miller 2).

Research and practice suggest that, appropriately implemented, network-based technology can contribute significantly to language learning.

Drawing upon the report of Jones, the researcher highlights some of the barriers that exist in schools and colleges that prevent teachers from making full use of ICT in teaching:

- a very significant determinant of teachers' levels of engagement in ICT is their level of confidence in using the technology;
- there is a close relationship between levels of confidence and many other issues which themselves can be considered as barriers to ICT;
- levels of access to ICT are significant in determining levels of use of ICT by teachers;
• inappropriate training styles result in low levels of ICT use by teachers;
• teachers are sometimes unable to make full use of technology because they lack the time needed to search materials and to prepare for their lessons;
• technical faults with ICT equipment are likely to lead to lower levels of ICT use by teachers;
• power problem in the region contributes immensely to the reluctance of teachers for the use of ICT.
• resistance to change is a factor which prevents the full integration of ICT in the classroom;
• teachers who do not realize the advantages of using technology in their teaching are less likely to make use of ICT;
• There are close relationships between many of the identified barriers to ICT use; any factors influencing one barrier are likely also to influence several other barriers.

The findings of another study by Mohd Yunus regarding the main challenges to ICT integration perceived by Language teachers in technical institutions comes to the conclusion that ICT integration in teaching “...is dependent upon adequate access, adequate computer resources, teacher development opportunities and onsite support – all of which require funding, thought, planning and support.” (93).

Unfortunately, most teachers today do not have sufficient technological training to guide their students exploring the computer and its assisted language learning programs. It is not surprising that most of the teachers feel that a lack of adequate opportunities for professional development is a barrier to their effective use of educational technology for classroom instruction.

It has been realized that a majority of the teachers consider themselves inadequately prepared. A recent body of literature reveals a "disconnect" between the idealism of those advocating the use of technology in schools and the reality of integrating technology effectively into today's classrooms. This disconnect is made apparent every time when teachers attend conferences where educators, on the one hand, share stories of wireless classrooms and portable laptops, while others lament not having air conditioning and enough textbooks. Such disparity complicates the issue of technology's efficacy in the classroom.
Ministry of Human resources and Development in its TEQIP: Project Implementation Plan reported that the lack of faculty training is exerting enormous pressure on the educational delivery system to meet quality benchmarks. This factor is adversely affecting knowledge and skill acquisition by students thereby lowering their employability (only 25% at present). It advocates regular training for faculty so that they can make optimum use of modern equipments, course specific software and ultra modern technological tools to make teaching-learning process more effective (1).

Suggestions from English language teachers for improving the situation include availability of an easily accessible resource room or centre that is manned by a full-time trained personnel who can be contacted at all times to assist the teachers when needed and availability of more suitable and practical computer courses. Last, but not the least, pre-service and in-service training for the teachers should be made mandatory. Especially university or college sponsored workshops are necessary and valuable, where pedagogy and theories of using technology are addressed. Teachers stressed that though hefty funds are spent for the purchase of equipment, yet imparting training to make the teachers tech-savvy is generally ignored which results in sheer wastage of the equipment as well. The literature in the field of English education demonstrates the efficacy of computer technology in reading and writing instruction and addresses its impact on the evolving definition of literacy in the Twenty first century but does not provide measured directions for how English teachers might develop technology literacy themselves or specific plans for how they might begin to critically assess the potential that technology might hold for them in enhancing instruction. They feel that emphasis should be on the adequacy of the training rather than on the frequency of the same. In the light of technological advancement, the training should include knowledge and skill about computer, electronic devices and information technology. New technologies cannot be imposed without enabling teachers and learners to understand these fundamental shifts. The report on UNESCO Meta-survey on the Use of Technologies in Education in Asia and Pacific (23) emphasizes that ongoing training is necessary for the trainers in institutions and organizations who are engaged in the design of curriculum, teaching materials and delivery of ICT-enabled education.

Technology may never replace teachers, but teachers who do not use technology will be replaced by those who do. It is apparent that the role of the teacher in this pedagogical rethinking is critical.
5.4 SUGGESTIONS FOR FURTHER STUDY

The present study has investigated the role of TELL in the improvement of the reading and writing skills of the engineering students. This research could be further developed to incorporate all other language skills and components. The implementation of technology and associated activities in the course was carried out on a small scale and thus the results cannot be generalized for all.

Furthermore, technology is an ill-defined concept that encompasses a wide range of tools, artefacts and practices, from multimedia computers to the Internet, from videotapes to online chat rooms, from web pages to interactive audio conferencing. These technologies vary a great deal in their capacity, interface, and accessibility. It is thus misleading to think the effects of interactive software are the same as those of online chat rooms just because they are all called ‘technology.’ Second, the effect of any technology on learning outcomes lies in its use. A specific technology may hold great educational potential, but, until it is used properly, it may not have any positive impact at all on learning. Thus, assessing the effectiveness of a technology is in reality assessing the effectiveness of its use rather than the technology itself.

Moreover, as other forms of e-learning (via self-access centre) and e-communication (i.e., facebook, orkut, twitter) evolve, it would be of value to consider whether or not those could either utilize or be integrated positively with language learning activities.

In the current research, the learner’s age, gender, social classes, computer competence, cultural beliefs or religious attitudes as well as the differences between circumstances of the various classes together with potential obstacles or advantages they may have, were ignored. Differences between different age groups from different social classes, differences between the performance of different genders, differences between the performance of learners with no computer knowledge, differences between learners with various native languages and other social, economic, political, cultural and religious beliefs and attitudes can be investigated in relation to the second language teaching process.

Thus, by means of the present study, several points and questions have come up that seem valuable enough to be investigated.
1. The same study can be developed by using other technological tools like mobile phone, interactive white boards and video conferencing.
2. The study can be designed to investigate how instructors’ attitude toward using technology affects students’ performance on a web-based course.
3. Is there a significant difference in students' listening achievement due to TELL methodology?
4. Is there a significant difference in students' speaking achievement due to TELL methodology?
5. Is there a statistically significant difference in the grammar achievement due to TELL methodology?
6. Is there a statistically significant difference in the vocabulary achievement due to TELL methodology?
7. Does TELL have any effect on students' achievement in language proficiency based on their computer competence, years of computer experience and number of hours using the computer daily?
8. The same study can be performed for the other learners of English as a foreign language.
9. The same study can be developed on the students of varied disciplines like humanities, commerce etc.
10. Students of a particular proficiency level like only elementary or advanced can be used as subjects to replicate the same study.
11. One can execute the same research on the students of primary, secondary, or post-graduate levels.
12. The same study can be developed on the students of varied geographical background like rural, semi-urban, urban etc.
13. What is the role and importance of an instructor and teacher training in technology-enhanced language learning?
14. An empirical study can be conducted concerning the effect of multimedia instruction on students’ perceptions and the relationship between such perceptions and the actual achievement of specific skills.