

Technology integrated TBLT for engineering students

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Abstract

The ultimate goal of any methodology of language teaching is to provide learners with authentic contexts to use the target language and improve their communicative competence. Task based language teaching (TBLT) integrated with technology attempts to design technology incorporated tasks that enable to achieve this goal. The paper discusses the positive impact of technology on language learning and elucidates the benefits of technology integrated tasks and its limitations. It presents the review of literature in the area of technology mediated TBLT. The paper explores the various platforms that technology offers to design tasks for the learners to simulate real and authentic use of target language that end in meaningful learning. The paper also justifies the suitability of engineering communication skills program as an ideal context to implement technology integrated TBLT.

Keywords: technology integrated TBLT, Impact on language learning, simulates authentic language use, challenges to overcome and advantages

Introduction

Over the last few decades, Task Based Language Teaching (TBLT) has been gaining attention from researchers to educators alike owing to the fact that it supports and facilitates second language acquisition. TBLT has become a leading pedagogical approach. Similarly, computer-assisted language learning (CALL) has also grown as a field, with the use and integration of technology in the classroom continuing to increase (Petersen & Sachs, 2015) [46]. As these fields have matured, a reciprocal relationship has developed (Lai & Li, 2011) [12], with the literature on tasks and technology seeking to not only examine how technology might support and facilitate language learning, but how TBLT might serve as a framework to more thoroughly investigate Call.

The fact that the American Government Language Institutions switched to task-based instruction (TBI) for foreign languages for adults prove that the same can be applied to EFL situations in India. "In a recent study into the impact of emergence of English as a global language on the policies and practices in the Asia-Pacific region, government informants in all seven of the countries surveyed claimed that task-based teaching was central principle driving their curricula" (Nunan 2002, 2003) [16], and one such context that can be benefited from technology integrated Task based syllabus is an engineering classroom. Integrating technology and task based syllabus needs a specific context where learners belong to intermediate level, come with certain existing language resources, aware of their language needs, has appropriate age level to handle the autonomy task based syllabus offers, and above all access to the computers and awareness of usage of technology. English for engineering students is one such specific context where all the above prerequisites are met. Hence, it provides an excellent platform to merge task based syllabus with technology.

The Impact of Technology on Language Learning

CALL (Computer Assisted Language Learning) section of the International Association of Teachers of English as a Foreign

Language (IATEFL) suggested broad changes that extend beyond methods of classroom instruction to changes in communication in and outside the classroom, changing needs for professional development, and changes in the English language itself in a special conference (Call in the 21st Century, in July, 2000 in Barcelona Brett 2001). It attempted to reveal how technology is likely to affect English language teaching in the coming years.

Technology is so embedded into higher education that, computers and projectors have become the much necessary teaching aids and virtual classrooms and online courses have gained firm foothold in universities. Today's students are armed with laptop, pen drive and Ipods rather than notebooks and pens when they come to class. An engineering class today is no different to the above scenario. In this context let's see how technology touches the English language acquisition process.

The Impact of Technology on English Language Acquisition process

Technology and English language education are related to each other (Singhal, 1997) [51], what has started as traditional language laboratories in the 1960s and 1970s has come a long way and playing a central role in language classrooms. Technology integrated language learning is gaining prominence today as it has multitude benefits and can stimulate language acquisition process. Not only does technology increase their motivation to learn, it also allows the teacher to differentiate lessons for every student based on their needs and understanding of specific information.

"Technology shouldn't replace the great things already happening in your classroom, but it can enhance, augment, and improve the teaching and learning experience when used for a specific purpose" (Nemeth & Simon, 2013, p. 52) [38].

The Advantages of Technology Integrated Language Classrooms:

1. Technology integration in foreign language teaching

demonstrates the shift in educational paradigms from a behavioral to a constructivist learning approach. Language learning needs an interactive and authentic environment which technology integrated classrooms can provide.

2. The advent of technology and development in the field of education has accelerated a shift from teacher-centered to learner-centered approaches in language learning and teaching. The role of a teacher changed to the role of a facilitator, who support and guide the learners.
3. Technology can now help students to develop language and literacy skills as they make connections among text, images, video, sound and animation; (O'Hara *et al.*, 2013, p. 277)^[42].
4. It enables students to learn at their own pace. Allowing students to work at their own pace and on their own level also builds engagement and motivation within learning because students do not feel as that they have to attain or exceed the standards and intelligence of those around them.
5. Learners find the classrooms more engaging as the teaching and learning aids are devices that immediately gain their attention. Collaborative language learning where peers learn from each other can be created.
6. Synchronous solutions like video-conferencing and face-to-face interaction through online virtual worlds (Hew and Cheung, 2010)^[7] are becoming increasingly popular as vehicles to promote language learning and create a motivating and interesting learning environment.
7. Technology integrated language teaching incredibly saves time which can be used by the teacher productively.
8. One modern strategy that is being used in the classroom is the idea of "flipping the classroom." Teachers would not be able to flip their classrooms without the use of a computer and applications such as power point.
9. Problem solving is another key skill which the learners need today even in language learning. Technology integrated learning would make the learners observe, think, question and arrange their ideas in the target language instead of mindless rote learning of rules.
10. Incorporation of technology in the classroom enables learners to assess their own work in a more meaningful way, become more aware of the quality of their work and accept feedback more willingly. Moreover, it gives them a chance to undertake a more self-monitoring role, which leads to a higher chance of fulfilling tasks successfully.

Added to the above advantages, technology helps in language acquisition outside the classroom too. Technology has also created a great way to communicate with people in different cultures. For instance, the Internet offers a worldwide learning environment that makes distance communication fast and affordable. By using the Internet, cross-cultural cooperative groups can be built up. It is a host to new spaces in which learners communicate through chat rooms, e-mail, and discussion groups. Internet provides excellent platforms such as Key pals, Discussion lists, Mock interviews, Glogsters to improve language and out of box thinking.

Liu, Lan and Jenkins found in their study "Technology-Enhanced Strategy Use for Second Language Vocabulary Acquisition" (2014) that using online tools such as YouTube and voice recorders increased student interest in lessons as well as extending the time students wanted to use technology to learn about a topic (p. 122). Students would use YouTube in order to

find video's which matched vocabulary terms they were learning about, allowing them to make visual and auditory connections to vocabulary terms.

TBLT: Definition and characteristics

TBLT is a process-based approach in which the task is the unit of focus, and where emphasis is placed on interaction, meaning, and what learners can do with language. Having gained a strong foothold as an important pedagogical and methodological approach during the last three decades, TBLT has its roots in Dewey's work on experiential learning, or learning by doing, and what Long (2015)^[34] referred to as l'education integrale, or whole learning. These philosophical foundations stress the importance of experience and relevance to learning, including the education of the learner for current or future communicative needs via engagement in authentic interactions.

TBLT is grounded in a usage-based approach to language acquisition, specifically that of the interaction approach (Doughty & Long, 2003; Long, 2015)^[10, 34]. The interaction approach to SLA suggests that conversational adjustments occurring during communication benefit L2 development by providing learners with opportunities to receive modified comprehensible input and interactional feedback, notice gaps between their inter language and the target language features, and produce output (Gass & Mackey, 2007; Mackey, Abbuhl, & Gass, 2012)^[17, 35]. TBLT, then, offers an ideal environment for negotiation, feedback, and output, thereby providing opportunities for L2 development to occur.

In this context it is important to understand the definition of task. In the research of TBLT there is multitude of task definitions each highlighting certain aspects of TBLT. The definition ranges from broader definition that encompasses any piece of work undertaken to the narrow one that focuses on language use. Ellis (2003)^[7] synthesizes various definitions to derive a composite one:

A task is a work plan that requires learners to process language pragmatically in order to achieve an outcome that can be evaluated in terms of whether the correct or appropriate propositional content has been conveyed. To this end, it requires them to give primary attention to meaning and to make use of their own linguistic resources, although the design of the task may predispose them to choose particular forms. A task is intended to result in language use that bears a resemblance, direct or indirect, to the way language is used in the real world. Like other language activities, a task can engage productive or receptive, and oral or written skills, and also various cognitive processes.

Ellis has deftly crafted a definition that includes almost all the major points of contention in language pedagogy: attention to meaning, engagement with grammar, inclusion of pragmatic properties, use of authentic communication, importance of social interaction, integration of language skills, and the connection to psycholinguistic processes. (Kumaravivelu; TESOL Methods: Changing Tracks, Challenging Trends)

In nutshell, the essence of TBLT is that communicative tasks serve as the basic units of the curriculum and are the sole elements in the pedagogical cycle in which primacy is given to meaning.

Review of Research done on Technology Integrated TBLT

The contribution of technology to TBLT frame work in

enhancing language learning and contribution of TBLT framework to technology in its implementation is mutual and beneficial.

The ways in which technologies help with learning through tasks and enriched our understanding of tasks, task design, and TBLT pedagogical cycles has been explored by many researchers.

A large amount of research has explored the feasibility and, more important, the benefits of doing tasks mediated by technological means. These research studies examined whether and how online tasks, either individual communication tasks or in systematic TBLT cycles, have positive effects on language learning. The online tasks that have been investigated include text-based and multimodal computer-mediated communication (CMC) tasks consisting of synchronous (e.g., online chatting) and asynchronous (e.g., email, blogs, and wikis) forms of communication.

a) Impact of technology on quantity of language production during task performance

Text-based computer mediated communication (CMC) has been found to increase the amount of language (e.g., more turns, words, and sentences) that students produce during task performance because they found this context more motivating and themselves less anxious in producing the target language (Beauvois, 1995; Chun, 1994; Kelm, 1992; Kern, 1995; Sullivan & Pratt, 1996; Warschauer, 1996) [4, 8, 23, 24, 57, 14]. Features in CMC such as addition of text chat to audio conference are shown to have positive impact on task performance. Learners produced longer but more interrupted dialogues in audio-plus-video context than in an audio-alone context (O'Malley, Anderson, & Bruce, 1996) [43]. In addition, learners produced a greater number of turns when they could see each other's image during online chatting and more utterances using target expressions in voice chat regardless of the availability of images (Yamada, 2009) [63]. Thus technology supports an increase in the amount of language production during task performance.

b) Impact of technology on quality of language production during task performance

Text-based CMC generates a form of written conversation that combines the advantages of both oral communication and written discourse for task performance. This feature contributes to technology's advantage in eliciting more complex structures (Böhlke, 2003; Kern, 1995; Kitade, 2000) [6, 25, 27] and greater grammatical accuracy (Salaberry, 2000) [50] in students' task performance than in face-to-face contexts. Added to this online audio chat sessions resulted in more target language use rather than face to face interactions. It also reduced off task interaction time. Asynchronous CMC (emails, blogs etc.) elicited syntactically more complex language (Sotillo, 2000, Hwang, 2008) [55, 20], greater lexical richness (Hwang, 2008) [20], and more accurate, formal, and longer T-units (Kitade, 2006) [28], in learners' task performance. Finally, collaborative project-based tasks in a wiki were found to induce greater creativity in writing and more complex language production over time (Mak & Coniam, 2008) [36]. Thus, research results are mixed but present strong evidence that technology helps enhance the quality of language production during task performance.

c) Impact of technology on task-based language development

Rankin (2008) [47], found that ESL students and native English speakers engaged in abundant collaborative behaviors during digital game play and that these in game interactions scaffold ESL students' second language learning. In a similar study, Thorne (2003) [61], provided a clear account of how one French learner, Kirsten, gradually gained self-regulation over French through technology-mediated task performance with her native speaker partner. Both the instances show how scaffolding from expert peers during task performance in technological environments allowed learners to move from other-regulated to self-regulated performance. In addition, researchers have also provided evidence of long-term language development in syntax, vocabulary, speaking, writing, and intercultural competence as a result of technology-mediated task performance. For example, Stockwell and Harrington (2003) [53], showed that intercultural email discussions on a series of cross-cultural topics led to gains in syntactic development and incidental vocabulary learning. Furthermore, cross cultural, project-based task performance via blogs over time was also found to lead to the development of intercultural competence (Ducate & Lomicka, 2008; Elola & Oskoz, 2008) [11]. Thus, there is ample evidence that task performance in technology-mediated environments supports language development.

d) Impact of technology on learning from tasks

Text-based CMC equalizes their participation during task performance due to "the reduction of static and dynamic social context cues" or "the absence of oral interaction constraints" (Ortega, 1997, p. 84) [44], such as interruption, transfer of speaking, and extra attention freed-up from monitoring pronunciation. Consequently, students demonstrated more balanced participation during task performance via text-based chatting (Sullivan & Pratt, 1996; Warschauer, 1996) [57, 14], quieter, less motivated, and less successful students participated in the task to a greater extent than in traditional situations (Beauvois, 1995; Kelm, 1992) [4, 23]. Multi modal communicative environments further help in learner autonomy on the learning environment.

e) Impact of technology on learning during task performance

Examination of the occurrence of negotiated interaction during technology-mediated task performance has yielded some positive findings. Ortega (2009b) [45], conducted comprehensive review of the research on the interaction in text-based CMC and concluded that the frequency of negotiated interaction occurring during technology-mediated task performance depended largely on the design of the tasks. Carefully designed tasks that are seeded with focal linguistic forms or are project focused generally generated high instances of negotiated interaction (e.g., Kötter, 2003; Pelletieri, 2000; Smith, 2003; Toyoda & Harrison, 2002) [29, 46, 57, 63]. The ambiguous nature of the online interaction forced learners to take extra efforts to make their intention for negotiation more salient to their interlocutors. For instance, Kitade (2006) [28], found that native-speaker/nonnative-speaker dyads exhibited accurate, complicated, formal, and explicit signals and salient triggers and responses during task-based email exchanges. Learners'

engagement with the cognitive construct of noticing of feedback from the interlocutors, which is argued to be essential to language development (Schmidt, 2001), has also been found to be heightened during technology-mediated task performance (Pellettieri, 2000; Lai & Zhao, 2006)^[46, 31], several studies have reported that engaging learners in technology mediated communication environments helped them construct a positive L2 identity, which indirectly facilitated their language development by promoting ownership and agency. In a yearlong ethnographic study on adolescent English language learners' interaction on the pop fiction sharing and critiquing site, Fan fiction (<http://www.fanfiction.net>), Black (2006) documented the ways in which the learners exploited the social, textual, and technological elements of this networked community to advance their literacy development and strengthen their identity as writers in the target language. Therefore, the construction of a positive L2 identity motivates learners to invest more time and effort into language learning.

Task based language learning through technology

The growing use of technology in the second and foreign language learning classroom underscores the need for the expansion of the definition of task, as the situations in which learners might participate in task-based learning are no longer restricted to a physical classroom. Instead, many learners now have a wide range of tools, including digital game-based learning, mobile-assisted language learning, and place-based learning. In other words, the contexts for learning and the resources available have expanded dramatically over the last few decades. In order to realize the full potential of technology-mediated TBLT, tasks need to be designed not only to promote the need for learners to exchange information, thereby providing multiple opportunities for interaction, and subsequently L2 development, but also to incorporate learners' digital and technological literacy and proficiency (González Lloret & Ortega, 2014)^[18].

Though TBLT with its use of target language for meaning making and negotiating language use process can undoubtedly promote language acquisition it has certain limitations while implementing in the classroom:

- Students need to play an active role and need to be self-reliant
- Will be difficult to implement in a typical overcrowded class due to the inevitable noise factor
- Mixed level of students is another major challenge to implement the same task.
- Student's reluctance to complete the task can be another hurdle.

Many of these challenges are due to the temporal and physical constraints of the classroom context and could potentially be minimized with the assistance of technology. Communication and information technologies expand the range of tasks with online resources (Skehan, 2003; Stone & Wilson-Duffy, 2009)^[53, 55], enhance the authenticity of tasks and motivation for task implementation (Sadler, 2009; González-Lloret, 2003)^[50, 18], facilitate student ownership of and agency in the tasks (Kern, 2006; Kern, Ware, & Warschauer, 2004; Reinders & White, 2010)^[25, 26, 49], and provide convenient venues for follow-up, post task work that can help students further their language and culture knowledge.

Digital technologies and multimodal communication make it possible for L2 teachers to create optimal TBI, which is

interactive, contextualized, and authentic. TBI holds great potential for fostering self-directed learning by purposefully engaging students in the learning process. Through TBI, students use the target language to carry out communicative tasks linked to real-world contexts (Leaver & Willis, 2005).

With the growing access to technology, there are many ways to incorporate technology based activities /tasks into language syllabus and methodology for better language acquisition by the students. There are many web based language tools that can be used for designing tasks. To name a few:

- 1) **Voice thread:** A task where students are asked to talk on assigned topic and listen to peer recordings can be designed to develop both speaking and listening skills. The tool can be used for making voice comments which can be assessed and given feedback.
- 2) **Video Conferencing:** Today's synchronous CMC tools, or what many call videoconferencing (e.g., Adobe Connect, Big Blue Button, Blackboard Collaborate, Skype, Google Hangout, Zoom), typically allow learners to exchange video, images, and text in real time and are at center stage with respect to fostering L2 speaking practice. Videoconferencing has become the norm for most tele collaboration projects (O'Dowd, 2007)^[41], tandem learning experiments (Guillén, 2014)^[19], and social media exchanges (Lin, Warschauer, & Blake, 2016)^[5].
- 3) **Audioboos:** A task where students can record and share audio in pair work can be designed to develop speaking and listening skills.
- 4) **Audio video cues:** A task where students can be given audio and video cues to listen and expand into brief narrations can be designed to develop their speaking skill.
- 5) **Digital writing tools:** These tools can be turned into tasks for developing writing skills.
- 6) **Mash up:** A task where students can combine media and text onto a web page to develop writing skills.
- 7) **Podcasts:** Task for developing listening comprehension can be designed.
- 8) **Edubba:** Simulation software that can be used as an authentic pedagogic task for improving writing and reading skills.

This program supports the development of content-based writing and reading skills for 13–16 year old ESL/EAL learners who are at the intermediate level of English proficiency and above. This program meets Goal 2, Standard 2 of the TESOL Pre K-12 Standards: 'To use English to achieve academically in all content areas: Students will use English to obtain, process, construct, and provide subject matter information in spoken and written form' (TESOL Inc., 1997)^[5].

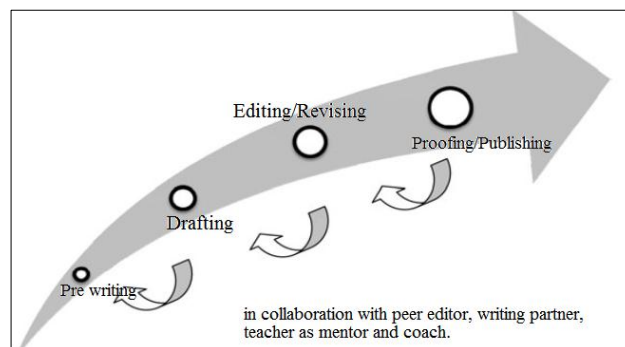


Fig 1

The pedagogical model of writing in *Edubba*

Added to these interesting and engaging tools, technology through tele collaboration provide platforms for designing pair tasks such as Information Exchange Task where students provide their tele collaborative partners with information about their personal backgrounds and their home culture. Comparison and Analysis Tasks requiring learners to exchange information, but also to go a step further and carry out comparisons or critical analyses of cultural products (e.g. books, surveys, films and newspaper articles) Group tasks can be designed where students are asked to discuss and design web posters. Project tasks where students are asked to submit in written format analysis of a website with information on one of the cultures/countries assigned by the teacher.

Challenges of Implementing Technology Integrated TBLT

Despite the promising benefits of the intersection of TBLT and technology, certain challenges need to be overcome for successful implementation of technology integrated TBLT in ESP classrooms? The various challenges that need to be understood and handled are:

- Learners need to possess digital literacy, awareness of technology mediated tools to participate in the tasks and acquire language. For an engineering student, this cannot be an insurmountable challenge as computer access and digital literacy are part of their core curriculum.
- Technology integrated TBLT would place higher demands on the teacher as they would need appropriate technical skills along with communicative skills. However, effective training on digital literacy and workshops to instill the knowledge and attitude to incorporate technology in the curriculum would help them to handle the web tools. Added to this, many of the tools are self-explanatory and easy to understand with little effort.
- Lack of adequate resources such as availability of systems, internet connection is another major challenge educational systems face while implementing technology integrated teaching and learning. ESP classrooms such as communication skills labs in engineering colleges have all the necessary infrastructure that meets the requirements of technology integrated TBLT.

Conclusion

Today's English classrooms expand beyond the physical walls and traditional curriculum because of the impact of the technology on the education system. The curriculum and methodology that integrates mobile, web-based and socially mediated technologies are capturing the attention of the learners and undoubtedly providing language tools for better acquisition. This fact combined with the growing popularity of language acquisition through task based instruction makes technology integrated TBLT an interesting and productive research area. Hence, carefully designed technology integrated tasks, with due consideration to the limitations and scope of the educational program, would undoubtedly yield better language acquisition in an ESL (English as Second Language) context.

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