THE IMPACT OF CALL-MEDIATED TBLT ON L2 READING COMPREHENSION

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ABSTRACT

This study investigated the effects of CALL-mediated TBLT on L2 reading comprehension. Employing a pretest-posttest/quasi-experimental design and using convenience sampling, two intact classes were chosen and each was randomly assigned as the experimental group and the control group. During the treatment sessions, the students in the experimental group received instruction in a CALL-mediated TBLT format, while the control group received only task-based instruction on reading without the mediation of technology. A reading comprehension test was used to collect the appropriate data. A univariate analysis of covariance (ANCOVA) was run to see whether the treatment given to the experimental group had statistically caused any significant change in this group. The results of the ANCOVA revealed a significant positive effect for CALL-mediated TBLT on L2 reading comprehension. The results of this study have both theoretical and practical implications and might shed light on the gap between the potentials and affordances of CALL-mediated TBLT.

Keywords: CALL-mediated TBLT, computer-assisted language learning (CALL), L2 reading, task-based language teaching (TBLT)

INTRODUCTION

For the past 30 years, Task-Based Language Teaching (TBLT) has drawn the attention of second language acquisition (SLA) researchers, practitioners, curriculum developers, educators, language teachers, and trainers throughout the world (Van den Branden, 2006). TBLT has been established for some time as one of the major approaches worldwide to language learning and teaching (Ellis, 2003; Nunan, 2004; Samuda & Bygate, 2008; Van den Branden, 2006). In language learning, TBLT owes a great deal to early research by Prabhu (1987, as cited in Thomas, 2013), who postulated that the importance of problem-solving activities and tasks are underlying principles of syllabus design as opposed to the then prevalent form of linguistic syllabus, which was organized according to the linear mastery of linguistic forms. Prabhu’s early work in India has clear lines of influence from interactionist theories in second language acquisition (SLA) theory to sociocultural and ecological approaches that place an emphasis on learner interaction, the importance of the learning environment for supporting and scaffolding learner development, and the genuine implications of the process (Thomas, 2013).

The birth of TBLT coincided with the rise of personal computers in educational settings (Thomas, 2013). In fact, computer-assisted language learning (CALL) has flourished as a field because of the continued use and integration of technology in the classroom (Petersen & Sachs, 2016).

An obvious question, then, is “why do we need an investigation on TBLT?” The current literature deals
almost exclusively with TBLT as practiced in face-to-face classrooms (Thomas & Reinders, 2010). As technology and computer-mediated environments become more widespread in educational settings, and as TBLT is adopted in contexts where language educators and researchers are enthusiastic to engage in pedagogical innovation, research into the blending of TBLT with technology-mediated environments becomes unavoidable, particularly to help language educators and researchers understand how CALL influences the design of tasks and curriculum (Simón, 2014). Ellis (2010) also argued that the current literature deals almost exclusively with TBLT as practiced in face-to-face classrooms: “There is still relatively little published about TBLT in technology-mediated contexts” (p. xvi).

The purpose of this study is to investigate the instructional benefit of integrating technology into a task-based reading module that is designed around a pre-during-post-task model and follows the main tenets of TBLT. To achieve this goal, this study employed TBLT as an overarching pedagogical framework that included technology-mediated instruction as a way of offering authentic target language. It asked the following research question: How does CALL-mediated TBLT affect L2 reading comprehension?

LITERATURE REVIEW

Task-Based Language Teaching (TBLT)

TBLT was coined and developed by SLA researchers and language educators in reaction to empirical studies of teacher-dominated, form-oriented second language classroom practice (Long & Norris, 2000). The introduction of TBLT into the world of language education has largely been a top-down, process-oriented approach to language teaching that places communicative language teaching at the center of syllabus design and instructional goals (Littlewood, 2004; Nunan, 2004; Richards, 2005). Centering language education around tasks gives learners an experiential educative process in which they use the target language for meaning making so that this negotiated language use process will stir up and enhance the learners’ language acquisition (Samuda & Bygate, 2008). Of great importance is the idea that, as Norris (2009) posits, TBLT “rejects the notion that knowledge can be learned independently of its application and embraces instead the value of learning by doing or experiential learning” (p. 578). Furthermore, well-developed experiential activities that involve the use of language are thought to drive language learning, as “it is by engaging learners in doing valued activities that relevant declarative and procedural knowledge is developed” (p. 579).

There has been a great deal of research that investigates the impact of TBLT on learners’ language development. To date, there is clear evidence that the use of tasks impacts learners’ language and their learning (e.g., Chen, 2018; Inayanti & Halimi, 2019; Kafipour et al., 2018; Khatib & Dehghankar, 2018; Milarisa, 2019; Nguyen & Nguyen, 2018; Rudd, 2019).

Computer-Assisted Language Learning (CALL)

Computer-assisted language learning (CALL) refers to “learners learning language in any context with, through, and around computer technologies.” (Egbert, 2005, p. 4). CALL involves applying computer hardware (Butler-Pascoe, 2011) and software (Busch, 2003) to a teaching and learning environment (Chun, 2001). CALL also embraces a wide range of information and communications technology tools and approaches to teaching and learning foreign languages, from the “traditional” drill-and-practice programs that described CALL in the 1960s and 1970s to more recent manifestations of CALL, e.g., as it is used in a virtual learning environment and in web-based distance learning. It also covers the employment of corpora and concordancers, interactive whiteboards (Schmid, 2009), computer-mediated communication (Lamy & Hampel, 2007), language learning in in cyberspace, and mobile-assisted language learning (Shield & Kukulska-Hulme, 2008).

The literature on L2 learning has witnessed an increased interest in CALL and teaching since the 1970s. Many studies (e.g., Abrams, 2003; AbuSeileek, 2004, 2007; Al-Bakrawi, 2005; Al-Mansour & Al-Shorman, 2009; Almekhlafi, 2006; Al-Menei, 2008; Al-Qomul, 2005; Bayraktar, 2001; Brown, 2005; Busch, 2003; Ferit, 2009; Gholinia, 2010; Jafarian et al., 2012; Lasagabaster & Sierra, 2003; Maftoon et al., 2012; Marzban, 2011) have examined the role of CALL on language learning. All of these studies confirmed that using CALL and technology-based tools in language instruction had positive effects that helped students improve their language skills. They also found that CALL programs did offer English Foreign Language
Technology also provides individualized instruction (De Ridder, 2000) that matches the student’s level of interest and motivation (Dreyer & Nel, 2003) and their understanding and pace of learning (Figura & Jarvis, 2007). Technology can also be used to reinforce what has been learned in the classroom or as a repair tool to help students who need additional support.

TBLT and CALL

At the same time that CALL was developed over the past three decades, TBLT evolved as one of the most important methodologies in second- and foreign-language learning (Thomas, 2013). Though CALL and TBLT have been running in parallel lines, they almost never crossed until the mid-1990s. Since then, more research has been undertaken that has sought to uncover ways in which TBLT can offer a pedagogical framework for work in CALL, as well as how CALL can help to overcome a number of the challenges and critiques targeted at TBLT (Chapelle, 2001; Ellis, 2003; Lai & Li, 2011; Ortega, 2009). Both have a great deal to learn from each other, especially in relation to the design, sequence, and understanding of tasks, as well as the behavior of learners in a task cycle.

According to Thomas (2013), technology can provide opportunities to surpass the restrictions of the traditional classroom. Online materials and applications can significantly promote the types, authenticity, and range of tasks in which learners are involved. Furthermore, through Web 2.0 technologies like blogs, wikis, and other collaborative tools, learners can emphasize their creative skills, write and generate outputs for an external audience, and engage in activities that underline their active, rather than passive, participation (Lankshear & Knobel, 2011). Technology can foster learner agency in language learning contexts and confirm constructivist goals and sideline the belief that learners are solely empty containers to be filled with knowledge poured into them by more knowledgeable instructors (Thomas, 2013).

With both TBLT and technology-mediated language teaching being gradually adopted by language educators and teachers, the technology and TBLT are becoming part and parcel of each other due to their theoretical and practical affinities (Ortega, 2009). This rapidly growing field shows that technology can improve learning in TBLT and TBLT can boost technology-mediated language learning.

Reading and CALL

Applied linguists and educators have introduced various approaches to enhance second language reading, including extensive reading (Day & Bamford, 1998; Iwahori, 2008; Sheu, 2003), strategy-based instruction (Anderson, 1999; Souvignier & Mokhesgerami, 2006), motivational approaches (Carreira, 2006; Kim, 2010; Warden & Lin, 2000), and text modification (Oh, 2001; Rahimi, 2011). According to Park et al. (2013), “in the last 20 years with the growing diffusion of multimedia computing and the internet, computer-based approaches to the teaching and learning of second language reading have also gained in popularity” (p. 268). CALL projects engage the students (Thomas, 2009; Thorne, & Payne, 2005; Tseng, 2008; Walker et al., 2011; Walz, 2001) in a number of interesting and interactive activities meant to boost reading skills (Yubune et al., 2007).

Chun (2006) indicated that vocabulary is best recalled when learners also receive a picture or video gloss in addition to the translations of unknown words. Yanguas (2009) corroborated the positive effects for combined glosses (i.e., text and picture) with respect to vocabulary recognition and, more importantly, also detected a positive effect for reading comprehension. Marzban (2011) explored the effectiveness of ICT and more specifically CALL on the quality of students’ reading comprehension in an Iranian academic setting. It was concluded that the use of computer assisted educational techniques can enhance students’ reading comprehension. Kern (2014, 2015) contended, most convincingly, that reading (and writing) on the internet involves a new type of mediation by the computer that necessarily changes the nature of this activity in both subtle and not-so-subtle ways. For example, most students today use Wikipedia as their only reading source (Godwin-Jones, 2015).

As cited in Liaw and English (2017), research has compared reading strategies used in text-based contexts and online environments (Genc, 2011), the strategies used by EFL learners (Omar, 2014), as well as by L1 and L2 learners during online reading (Taki, 2016). Studies are also looking into strategies and decision-making processes used as L2 learners engage in online reading (Park et al., 2014). As mobile
devices become increasingly accessible, strategies used in mobile contexts are not left unexplored. Auer (2014) explored the strategies employed by readers when using the functions afforded by tablets to support reading comprehension. The study by Fu et al. (2014) focused on the effects of reading strategy via ebook reading.

**METHODOLOGY**

**The Design of the Study**

The research was conducted using the nonequivalent groups pretest-posttest design, which is the most commonly used quasi-experimental research design (Best & Kahn, 2006). This design is structurally similar to the true experimental design, but it does not employ random sampling. In nonequivalent control group design, the dependent variable is measured both before and after the treatment. The dependent variable is L2 reading comprehension and the main independent variable is the method of teaching reading using technology-mediated TBLT.

**Participants**

In this study, the population was non-English major EFL undergraduate university students enrolled at Islamic Azad University, Izeh Branch, during the academic year 2017-2018. Through nonprobability and convenience sampling, two intact freshmen classes were chosen and randomly assigned as the experimental group (N = 45) and the control group (N = 38). The subjects (27 males and 56 females) were of the same educational background, ranged in age from 21 to 28, and had been studying English for at least six years at school. Most of the subjects were from Izeh, but some of them were from other cities and lived in dormitories. All participants were native Persian speakers with minimum opportunity to communicate with native English speakers.

**Instruments**

**Oxford Placement Test (OPT)**

At the beginning of this research, the subjects were required to take the Oxford Placement Test (OPT; Allan, 2004) to make sure they were homogeneous with respect to their proficiency in language skills as a whole. As a proficiency test, OPT is expected to be norm-referenced and is intended to “measure global language abilities” (Brown, 2005, p. 2). The OPT entails 200 questions: 100 listening and 100 English grammar questions, and the first section is a test of reading and listening skills. The OPT took one hour and first part was listening and lasted about 10 minutes. Students then had approximately 50 minutes for the grammar part. In both the listening and grammar parts, students chose one correct box out of two boxes. According to Allan (2004), the OPT provides a reliable and efficient means of placing students at the start of a course for teachers. To check the reliability of the test in an Iranian context, we obtained the reliability of the test by using KR-21 to measure of internal consistency, which was 0.78.

**Technology Background Questionnaire (TBQ)**

The TBQ was designed to measure the participants’ level of experience with computers and their current use of technology. This questionnaire included 18 items, such as using a cell phone, writing (word processing), using computers, using the internet, using general communication tools (email, online chat), social networking (video conferencing, Facebook, discussion boards, Telegram, Whatsapp, etc.), watching English television or movies, electronic learning (CD-ROM or Internet tutorials), creating media (video, audio recording), creating presentations (PowerPoint), creating websites, taking online courses, and researching (internet searches). Each item was quantified by using a five-point Likert-type scale: (1) never; (2) rarely; (3) sometimes, (4) often; and (5) very often. The Cronbach internal consistency coefficients of the scale in the pilot study and main study was 0.78 and 0.83 respectively.

**Computerized Reading Comprehension Test**

We designed and piloted a computerized reading comprehension test. The test comprised fifty multiple-choice items with five authentic passages that were taken from online English websites with topics including banks, rainbows, Mount Rushmore facts, etc. The passages ranged from 145 to 560 words in length and with an appropriate readability index (between 60 and 70—using the Flesch Reading Ease test). This readability test rates text on a 100-point scale, and the higher the score, the easier it is to understand the text.

To measure the reading ability of the participants, the subjects from the experimental and control groups were asked to complete the same test on a pretest-posttest basis to determine whether there would be gains in reading ability over the twelve-
week period. The internal consistency coefficients of the reading pretest and posttest, using a KR-21 measure of internal consistency, were 0.80 and 0.82 respectively.

Data Collection Procedures

Pilot Study

Before the main study, a pilot study was conducted to check the internal consistency and reliability of the reading instrument. It was given to 29 undergraduate EFL majors (11 = male, 18 = female) who were selected through simple random sampling to represent the entire sample of subjects chosen for the main study. The reliability coefficient of the test through the KR-21 measure of reliability was calculated as 0.81, indicating that the test enjoyed a reliable index of reading ability. The validity of the instrument was also checked and evaluated by both qualitative and quantitative tools. To this end, a questionnaire based on Weir’s checklist (1997), which was adopted by Barati (2005), was employed for eliciting both participants’ and experts’ judgements. To quantitatively analyze the data, exploratory factor analysis was also used on both the experts’ and students’ answers in the questionnaire. The results indicated that the reading comprehension test proved valid enough for measuring EFL learners’ reading ability.

Main Study

The study consisted of three main phases: (1) pretesting (2) instruction in technology-mediated TBLT and (3) posttesting. After administering the general background questionnaire and OPT, both groups of students were given a test of reading as a pretest to assess their current reading comprehension ability.

At the second stage, the control group received no technology-mediated TBLT instruction but received only task-based instruction on reading without the mediation of technology. The experimental group took part in a weekly study session in the university audio-visual center over a twelve-week semester. During the treatment sessions, the students in the experimental group received instruction in a technology-mediated TBLT format, following the modified framework suggested by Bygate (1994), Ellis (2003), Lee (2000), Skehan (2011), Willis (1996, 2004), and Willis and Willis (2007).

Prereading Task Stage. This was the first stage of the teaching procedure, the aim of which was to activate the background knowledge of the readers, arouse their interest in the text, develop expectations about the topic, generate vocabulary and related language, and set up a purpose for them to continue reading. It was intended to provide readers with opportunities to activate their own existing schematic knowledge and to use their imagination to make predictions. This stage served as the preparation stage, and the tasks given at this stage usually enabled the learners to engage in active purposeful interaction that stirred up their desire to read the text. The students were motivated and prepared themselves better for the reading task and understood more about the passage when they got into a detailed study of it.

During-Reading Task Stage. At this stage, the teacher designed and assigned tasks to make students read the text efficiently and increase their understanding. Tasks were designed to train students’ reading skills such as scanning, skimming, reading for thorough comprehension, and critical reading. There were many reading activities that were recommended in class: read for specific information, read for gist or general ideas of the text, deduce the meanings of certain words from a given context, infer the writer’s intended message from a given context, and recognize the author’s purpose and attitude.

Postreading Task Stage. Postreading activities were principally for learners to practice communicative output. The tasks at this stage were designed to offer students communicative opportunities to use the language points to communicate and extend the content of the text to a real-life situation. There were many forms available for the activities of this stage, such as text rewriting, role-playing, suggestion making, discussion, report, etc. These activities involved speaking, listening, and writing. At this stage, group or pair work made the reading more communicative and placed the students at the center of the activities as active readers and participants in the reading tasks. The teacher was supposed to be an organizer, facilitator, and a guide.

Each weekly session involved sixty minutes of using TBLT activities integrated with technology (see Table 1), followed by fifteen minutes of debriefings in groups of three or four at the end of each session. The instructor briefly introduced different resources the students could choose from (e.g., online magazines/newspapers, news podcasts/vodcasts, online glosses/dictionaries, multimedia
software, and synchronous/asynchronous electronic communications), encouraged them to try different functions (e.g., recording, role-playing, and repetition), and offered assistance as necessary to solve technical problems, such as installing software. The participants chose whatever they liked to work on in each session and how they wanted to work. They then shared their reflections at the debriefing in either English or Persian. The participants also had to submit weekly learning diaries by email or social network programs (e.g., Telegram and WhatsApp applications), with reflections on various aspects of their learning such as what content they learned, how they learned it, what particular software functions they used, any problems or insights, and a self-evaluation of their progress or changes that they noticed compared with previous sessions, important events in the learning process, and inner thoughts.

Table 1. Activity Types in CALL-Mediated TBLT

<table>
<thead>
<tr>
<th>TBLT Activities</th>
<th>Technology-Based Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listing</td>
<td>Multimedia (hypertext, hypermedia)</td>
</tr>
<tr>
<td>Skimming</td>
<td>CD-ROM software</td>
</tr>
<tr>
<td>Scanning</td>
<td>Speech syntheses</td>
</tr>
<tr>
<td>Ordering</td>
<td>Digital Audio/Video</td>
</tr>
<tr>
<td>Sorting</td>
<td>Podcasts/Vodcasts</td>
</tr>
<tr>
<td>Comparing and contrasting</td>
<td>E-mail</td>
</tr>
<tr>
<td>Engaging in problem solving</td>
<td>E-portfolios</td>
</tr>
<tr>
<td>Sharing personal information</td>
<td>Internet browsing</td>
</tr>
<tr>
<td>Information-gap tasks</td>
<td>Interactive language software</td>
</tr>
<tr>
<td>Jigsaw tasks</td>
<td>Instant messaging</td>
</tr>
<tr>
<td>Role play</td>
<td>Social networks (e.g., WhatsApp, Telegram)</td>
</tr>
<tr>
<td>Creating a project</td>
<td>Chatrooms</td>
</tr>
<tr>
<td>Reporting</td>
<td>Microsoft Office</td>
</tr>
<tr>
<td>Suggestion making</td>
<td>Online/offline dictionaries/glosses/</td>
</tr>
<tr>
<td>Collaborating in discussion</td>
<td>WebQuest</td>
</tr>
<tr>
<td>Giving a presentation</td>
<td>Blogs/Websites</td>
</tr>
<tr>
<td>Text rewriting</td>
<td></td>
</tr>
</tbody>
</table>

To investigate the longer-term effects of the study, follow-up interviews were conducted with the participants. After the instruction period, the same reading comprehension pretest was administered as a posttest to both groups.

Data Analyses

The Statistical Package for the Social Sciences (SPSS, Version 24) was employed for the statistical analysis of the data and the significance level was set at $p < .05$. The data were analyzed through descriptive statistics to determine the mean scores and standard deviations. An independent-sample t-test was also employed to check for the homogeneity of the two groups and to make sure that there would be no significant difference in terms of reading comprehension ability between the experimental group and the control group. For scoring the reading comprehension test and OPT, one score was assigned to each correct answer. The scores for all items were then added up and an ultimate score was calculated for every participant. To see if the performance of the students in the experimental group was significantly different from that of the control group, a univariate analysis of covariance (ANCOVA) was also conducted.

RESULTS

OPT Results

The OPT was employed to see if the students in two intact classes chosen as samples of the study belonged to the same population and could act as the participants of this study. Item analysis measures showed that all items were functioning satisfactorily. The reliability coefficient of the test computed through Cronbach’s Alpha turned out to be 0.78. Moreover, an independent-samples t-test was run to compare the scores for the experimental and control groups. Assuming that the variances of the two groups are equal, there was no significant difference in scores between the proficiency abilities for the experimental group ($M = 119.6444$, $SD = 13.75542$) and control group ($M = 119.5789$, $SD = 13.66467$; $t (81) = .022$, $p = 0.983$, two tailed) at the beginning of the study. The magnitude of the difference in the means (mean difference $= 0.06550$, 95% CI: $-5.94612$ to $6.07711$) was very small (eta squared $= 0.0048$). It means that the students were at the same level of proficiency and the researcher could run the research that could lead to the comparison of the reading performance of the two groups.

TBQ Results

According to the overall means of the TBQ, items such as “using cell phone” ($M = 4.3976$), “using Instant messaging” ($M = 4.26$), “using the
internet “(M = 4.08), “general communication (email, online chat)” (M = 3.98), “social networking (video conferencing, Facebook, Telegram, Instagram, etc.)” (M = 3.67), and “using computers” (M = 3.57), were the most frequently experienced ones and used at a high-usage level (Table 2).

On the contrary, items such as “creating presentations (PowerPoint)” (M = 1.84), “creating websites” (M = 1.83), “using multimedia (hypertext, hypermedia)” (M = 1.80), “using podcasts/vodcasts” (M = 1.80), “electronic learning (CD-ROM or Internet tutorials)” (M = 1.45), and “using speech synthesis” (M = 1.25) were the least frequently experienced items and used at a low-usage level.

Items such as “internet browsing” (M = 3.30), “writing (word processing)” (M = 3.24), “using online/offline dictionaries/glosses/translators” (M = 2.86), “watching English TV series, movies or animations” (M = 2.33), and “creating media (video, audio recording)” (M = 2.24) were the among the moderately experienced ones and used at a midusage level.

Students with a higher preference for learning with technology are more likely to become actively involved in class activities, have a greater desire to learn English, and gain a higher degree of course satisfaction. Because learning with technology appears to benefit motivation and course satisfaction, educators might consider integrating technology throughout their language-learning curriculum.

**Results for the Research Question**

The current study attempted to answer the following research question: “How does CALL-mediated TBLT affect L2 reading comprehension?”

Prior to the intervention and in order to make sure that no significant difference in terms of reading comprehension ability existed between the experimental and control groups, a reading comprehension pretest was given to both groups. There was no significant difference in descriptive scores for the experimental group (M = 24.34, SD = 3.99) and control group (M = 24.40, SD = 3.71).

An independent samples t-test was then used to find out if the two groups performed significantly differently on the reading comprehension pretest or not. The results obtained from this statistical analysis demonstrated (see Table 3) that the two groups did not differ significantly in their performance on the reading comprehension pretest (t = -.074, p = 0.941, two-tailed). The degree of the differences in the means (mean difference = -.06345, 95% CI: -1.75933 to 1.63243) was very small (Eta squared = 0.008).

After implementing the thirteen-session training program, all the participants in the two groups were

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**Table 2. Descriptive Results for Technology Background Questionnaire (TBQ)**

<table>
<thead>
<tr>
<th>Questionnaire item</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using cell phone</td>
<td>83</td>
<td>4.39</td>
<td>.58</td>
</tr>
<tr>
<td>Using Instant messaging</td>
<td>83</td>
<td>4.26</td>
<td>.82</td>
</tr>
<tr>
<td>Using the internet</td>
<td>83</td>
<td>4.08</td>
<td>.68</td>
</tr>
<tr>
<td>General communication (e-mail, online chat)</td>
<td>83</td>
<td>3.98</td>
<td>.90</td>
</tr>
<tr>
<td>Social networking (video conferencing, Facebook, Telegram, Instagram, etc.)</td>
<td>83</td>
<td>3.67</td>
<td>.90</td>
</tr>
<tr>
<td>Using computers</td>
<td>83</td>
<td>3.57</td>
<td>.94</td>
</tr>
<tr>
<td>Internet browsing</td>
<td>83</td>
<td>3.30</td>
<td>.97</td>
</tr>
<tr>
<td>Writing (word processing)</td>
<td>83</td>
<td>3.24</td>
<td>.98</td>
</tr>
<tr>
<td>Using online/offline dictionaries/glosses/translators</td>
<td>83</td>
<td>2.86</td>
<td>.95</td>
</tr>
<tr>
<td>Watching English TV series, movies or animations</td>
<td>83</td>
<td>2.33</td>
<td>.93</td>
</tr>
<tr>
<td>Creating media (video, audio recording)</td>
<td>83</td>
<td>2.24</td>
<td>.93</td>
</tr>
<tr>
<td>Creating presentations (PowerPoint)</td>
<td>83</td>
<td>1.84</td>
<td>.94</td>
</tr>
<tr>
<td>Creating websites</td>
<td>83</td>
<td>1.83</td>
<td>.77</td>
</tr>
<tr>
<td>Using multimedia (hypertext, hypermedia).</td>
<td>83</td>
<td>1.80</td>
<td>.87</td>
</tr>
<tr>
<td>Using podcasts/vodcasts</td>
<td>83</td>
<td>1.80</td>
<td>.70</td>
</tr>
<tr>
<td>Electronic learning (CD-ROM or Internet tutorials)</td>
<td>83</td>
<td>1.45</td>
<td>.56</td>
</tr>
<tr>
<td>Using speech synthesis</td>
<td>83</td>
<td>1.25</td>
<td>.46</td>
</tr>
</tbody>
</table>
given the reading comprehension posttest—the same test that had been administered as the pretest before starting the training. Table 4 shows descriptive statistics of the reading comprehension pretest and posttest, and the students in the experimental group obtained much higher mean posttest scores on the reading comprehension test (M = 36.41, SD = 4.94) than the control group (M = 25.44, SD = 3.31). There were higher posttest scores on reading comprehension than pretests in both groups.

In order to see whether the treatment given to the experimental group had statistically caused any significant change in this group and to see if the performance of the students in this group was significantly different from that of the control group, a univariate analysis of covariance (ANCOVA) was employed while controlling for preintervention scores. Preliminary checks were made to make

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**Table 3. Independent Samples t-test of the two Groups on the Reading Comprehension Pretest**

<table>
<thead>
<tr>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.842</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>-.075</td>
</tr>
</tbody>
</table>

**Table 4. Means and Standard Deviations for Pretest and Posttest Scores on the Reading Test**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>24.34</td>
<td>36.41</td>
</tr>
<tr>
<td>N</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>3.99</td>
<td>4.94</td>
</tr>
<tr>
<td>Control group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>24.40</td>
<td>25.44</td>
</tr>
<tr>
<td>N</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>3.71</td>
<td>3.31</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>24.37</td>
<td>31.39</td>
</tr>
<tr>
<td>N</td>
<td>83</td>
<td>83</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>3.84</td>
<td>6.94</td>
</tr>
</tbody>
</table>

**Table 5. Results of ANCOVA on Postreading Scores Using Pretest as a Covariate**

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>2839.55a</td>
<td>2</td>
<td>1419.77</td>
<td>101.46</td>
<td>.00</td>
<td>.717</td>
</tr>
<tr>
<td>Intercept</td>
<td>616.00</td>
<td>1</td>
<td>616.00</td>
<td>44.02</td>
<td>.00</td>
<td>.355</td>
</tr>
<tr>
<td>Pre reading</td>
<td>363.06</td>
<td>1</td>
<td>363.06</td>
<td>25.94</td>
<td>.00</td>
<td>.245</td>
</tr>
<tr>
<td>Groups</td>
<td>2492.02</td>
<td>1</td>
<td>2492.02</td>
<td>178.08</td>
<td>.00</td>
<td>.690</td>
</tr>
<tr>
<td>Error</td>
<td>1119.47</td>
<td>80</td>
<td>13.99</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>85749.75</td>
<td>83</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>3959.02</td>
<td>82</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. R Squared = .71 (Adjusted R Squared = .70)
sure that there was no violation of the assumptions of normality, linearity, homogeneity of variances, homogeneity of regression slopes, and reliable measurement of the covariate. As indicated in Table 5, significant effect was found for CALL-mediated TBLT ($F = 178.08$, $p = 0.00$, partial eta squared = 0.69), suggesting that CALL-mediated TBLT had a positive effect on the reading comprehension performance of the students in the experimental group on the posttest in contrast to the students in the control group.

**DISCUSSION**

Overall, the findings of this study are in line with those of studies conducted, for example, by Cho (2017), Esfami and Kung (2017), Gholinia (2010), Harris (2017), Hohnacki (2018), Jackson (2017), Jafarian et al. (2012), Maftoon et al. (2012), Martin (2018), Marzban (2011), Naraghizadeh and Barimani (2013), and Ware (2017). All of these studies showed that using computer and technological tools in English language instruction has positive effects that helped students improve their language skills. They also found that CALL programs do offer EFL students certain educational benefits. The findings are also consistent with those of studies such as Bayley-Hamlet (2017), Castillo (2017), Crum (2017), Hea-Suk (2014), Huang (2018), Saeidi and Yusefi (2012), Suzuki (2017), Tseng et al. (2015) and Vafaeeepour (2017) that traced the comprehension ability of language readers through CALL and technology. According to these studies, CALL can significantly improve the types, authenticity, and range of tasks that learners engage in so they can strengthen their creative and interactive skills, author and produce outputs for an external audience, and engage in activities that underline their active rather than passive contribution and involvement. They concluded that CALL engages the students in a number of interesting and interactive activities meant to enhance reading skills. It is also implied that TBLT in conjunction with CALL can promote learner autonomy and agency in language learning contexts, which corroborates constructivist goals and sidelines the notion that learners are merely empty containers to be filled with knowledge poured into them by more knowledgeable instructors.

The findings are not altogether unexpected, and the significant differences can be attributed to several factors. First, using technology and CALL tools in English language instruction is a novelty. This novelty may have encouraged the subjects to deal with the computer enthusiastically, which may have been reflected in better attainment. Second, most CALL tools operate on programs that are based on individualized learning and account for the level and pace of the individuals. This may foster learning as the learner may feel that they are in control of the whole learning process. Third, using technology in conjunction with tasks allows the students to repeat the same part of a task as many times as necessary for them to comprehend. Furthermore, they are able to refer to the learning material and tasks any time at their convenience. Fourth, using CALL tools along with tasks in teaching makes the students become less shy of committing errors and mistakes, which encourages them to learn much better and as a result boost their achievements. Fifth, by using technology and CALL tools, students might have felt that they were not being watched or judged so they felt relaxed about gathering information and seeking help from other students. Finally, CALL tools have many other positive characteristics, such as speed, accuracy, variability of presentation, and flexibility of use and control, that surpass other modes and channels of presentation.

Due to the wide variety of physical and virtual environments that learners might choose to occupy, the challenge is to analyze and interpret students’ chosen environments rather than simply reproduce them in the language classroom (González-Lloret & Ortega, 2014). A needs analysis, as an important component of any well-developed language curriculum and an essential component of a task-based language curriculum (Long & Norris 2000), must be presented as the starting point for developing CALL-mediated TBLT, and such a needs analysis must be intended to assess not only learners’ language needs but also their technology needs (González-Lloret & Ortega, 2014). Furthermore, to push the field forward, research efforts need to be “ethically responsible” (Ortega & Zywik, 2008, p. 334) and adopt a reasonable approach while keeping an open mind to understanding the benefits of technology for task performance by learners from diverse backgrounds and with varied cultural capital (Lai & Li, 2011).

According to Blake (2016), “the practice of CALL itself no longer deals with digital writing as separate from reading, nor implements speaking
practice in isolation from listening” (p. 137). As Blake
states, none of these activities should be detached
from the theory of multicultural competence and
the creation of a bilingual identity. The TBLT
approach implicitly appears to recognize this more
integrated view of language, even when particular
grammatical structures are being targeted. TBLT
language practice—assisted by CALL or not—
springs from the users’ needs, goals, language use,
and reflections. Quite naturally, instructors continue
to think in these terms when putting together a
language curriculum, but making the effort to
construct sound TBLT activities will help to shift
the focus to a more integrated implementation of
L2 learning with an impressive array of CALL
tools to help (Blake, 2016). “CALL is now framed
in a much more multimodal context where learners
enjoy greater agency and autonomy to produce
language through digital forms” (Blake, 2016, p.
137). As cited in Blake, for language instructors,
CALL may represent a Brave New World, not
without its conundrums and perils (Kern, 2014),
but an environment well worth taking benefit of its
affordances for L2 learning.

IMPLICATIONS
This study has proposed CALL-mediated
TBLT as a pedagogical framework to capture the
integrative understanding of optimal reciprocal
blends of CALL and tasks that can be used to
orchestrate TBLT or experiential “learning while
doing” language education programs. As for
pedagogical implications, tasks can be designed
and deployed in the classroom in conjunction
with CALL and related technological tools to
motivate and engage learners in using language
interactively and communicatively so as to enable
students to grasp how aspects of the language
work and integrate the new language into their
active communicative use. In this way, learners can
progressively sharpen their understanding of new
language, with the task providing a constant context
for familiar language to be activated and for new
language to be encountered, used, and gradually
mastered. Tasks then become effective mediators of
language learning.

Therefore, the findings of this research are
beneficial for those interested in knowing how
the theoretical tenets of TBLT can actually be
translated into practical classroom activities. More
specifically, the findings of this study can be useful
for EFL methodologists, textbook writers, syllabus
designers, curriculum developers, language
teachers, and software developers. Moreover, both
preservice and in-service instructors of L2s may
find sources of inspiration and may benefit from
seeing how theoretical concepts can become real
tasks in the classroom. Universities, ministries of
education, and other educational institutes are also
recommended to make use of and benefit from the
instructional value of this study when computerizing
their L2 learning curricula.

CONCLUSION
This study implemented and researched TBLT
in a CALL-mediated environment. It focused on
the intersection of CALL and TBLT and revealed
their positive mutual contributions on students’ L2
reading comprehension. However, more research is
needed to better understand how TBLT might best
be used to maximize the available affordances of
technology-mediated learning (Ziegler, 2016). As
Nielson (2014) noted, technology influences the
entire curriculum, highlighting the importance of
using carefully considered guidelines, such as those
put forward by González-Lloret and Ortega (2014),
during the design, implementation, and evaluation
phases of a task-based approach. In addition, future
research should investigate how these technology-
mediated TBLT principles may be applied to
task design and implementation using new and
emerging media. Since Lai and Li’s (2011) and
Thomas’ (2013) reviews of tasks and technology,
and despite previous research underscoring the need
for explorations of task-based learning in a variety
of technology-mediated environments (Peterson,
2011), relatively few studies have examined how
TBLT might enhance the use of new technologies.

LIMITATIONS OF THE STUDY
Like all other studies, the current study
constantly is not without any limitations. The main
methodological limitation in this study was the
nonrandom selection of sample, which has an
impact on the external validity (i.e., generalizability)
of the findings. In other words, the nonrandom
selection of sample limits the generalization of
the findings only to cases similar in nature to
those used in the study. The sample in this study
drew from infusing technology to language
learning classrooms. Randomization is not always
appropriate or practically and conceptually feasible in all educational research situations (Wiersma & Jurs, 2009). Another limitation is that the small sample size restricts the generalization of findings of the study; thus, there is an essential need for future research to cross-validate findings from the present study to a different and larger sample.

RECOMMENDATIONS FOR FURTHER RESEARCH

More research is needed to better understand how TBLT might best be used to maximize the available affordances of technology-mediated learning (Ziegler, 2016). In addition, future research should investigate how technology-mediated TBLT principles may be applied to task design and implementation using new and emerging media. According to Ziegler (2016), given that technology is a constantly evolving field, more research is needed to understand how the use of task-based principles might guide and enhance the L2 learning potential for digital game-based language learning, mobile-assisted language learning, and learning in social networking and in virtual and immersive environments.

This study also opens important lines of future research in, for example, the investigation of online tasks and cognitive complexity. There are still many unknown facets of CALL-mediated task complexity that may differentiate such tasks from those found in nontechnological environments. In addition, we need to consider how the use of technology-mediated tasks can advance task theory and research, a question that was already posited by Chapelle (2003) but has yet to be fully addressed. Another area for future exploration pertains to the roles of the teacher in a CALL-mediated TBLT curriculum, teacher training issues, and teacher-learner reciprocal interactions as they experience tasks and CALL-based technologies for the sake of language learning. It is also recommended that this study be replicated with a larger number of participants and over an entire year. In addition, it would be interesting to compare results across levels of proficiency and gender. Further studies might describe what teachers should do with technology in their own classrooms. Research in this area should identify the needs of both language learners and instructors and the role that effective technology education and integration can play to meet learners’ needs.

The possibilities for continued research in the area of CALL-mediated TBLT seem endless. With each question posed new ones arise. Each avenue that is explored, each genre that is touched, leads the researcher to new questions.
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