



## The Effect of Technology-mediated Reading Comprehension Tasks on Autonomy and Metacognitive Strategy Use by Iranian EFL Intermediate Learners

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### Abstract

The present study aimed at investigating the efficacy of the implementation of technology-mediated reading comprehension tasks to develop learner autonomy and metacognitive strategy use of Iranian intermediate EFL learners in a reading comprehension class. To this end, a quasi-experimental design was used in which 80 language learners were selected based upon their performance in a placement test (Oxford Quick Placement Test), and were assigned on a random basis to experimental and control groups. Learner autonomy questionnaire as well as metacognitive awareness of reading strategies inventory (MARS) version 1.0. were used as pretest. After 20 sessions of reading comprehension instruction in the form of technology-mediated task-based instruction in the experimental group and traditional explicit instruction for the control group, the aforementioned questionnaires were administered again as posttest. The obtained pretest and posttest scores were analyzed statistically using ANCOVA. The results indicated that technology-mediated task-based instruction was more effective in enhancing learner autonomy and metacognitive strategy use in comparison to the traditional explicit reading comprehension instruction. The results bear implications for teachers, teacher trainers and material developers as they can use the tasks implemented in this study to change the role of learners from passive recipient of information to autonomous learners who resort to strategies facing a problem. Further, using these tasks in a class of reading comprehension, learners are not only input receivers but also output producers.

**Keywords:** Learner Autonomy, Metacognitive Strategies, Reading Comprehension, Technology-mediated Task-based Language Teaching

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Received 05 November 2019

Accepted 09 February 2020

Available online 10 June 2020

DOI: 10.30479/jmrels.2020.11739.1459

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## 1. Introduction

As a thriving approach to second/foreign language teaching, Task-Based Language Teaching (TBLT) has paved the ground for a large number of learners throughout the world to develop basic language skills and build on them to reach their desirable command of language. The ever-increasing interest in TBLT can be ascribed to the fact that learners are put in the spot light while they are performing tasks. They are given different social roles in different real-life simulated tasks, and they are encouraged to actively become involved in the language learning process by fulfilling the requirements of the given roles (Branden, 2011). Tasks are defined by Samuda and Bygate (2008) as holistic activities which put a linguistic challenge ahead of language learners while they are unaware that they are being challenged, assuming that they are accomplishing a non-linguistic goal. They also added that the underlying aim of tasks is to develop both the process and the product in L2 acquisition. By the same token, Ellis (2009) contends that to maximize the efficiency of tasks, in their design not only the provision of input but also prompting output should be taken into account.

As one potential facilitator for the implementation of TBLT, the utility of technologies like computers, mobiles and tablets should be put into test. Rapid growth and expansion of technologies can help a great deal to omit the limitations and difficulties that learners and teachers confronted with in the past. Research has shown that technology-mediated language teaching brings about convenience, flexibility, individuality and rapidity (Jones & Jo, 2004). As other clear advantages of technology-mediated language teaching, breaking the boundness of time and place of learning and teaching can be referred to. Further, technology provides easy and low cost access to a countless number of authentic texts (Cobb, 2006), changes the level of texts to become appropriate to the level of learner (Crossley, Greenfield & McNamara, 2008), and scaffolds learners through providing them with other resources which become easily available by clicking a link. The use of virtual learning provides a platform where many aspects of teaching environment resemble real life situations; therefore, it enables learners to transfer the acquired skills to real life situations.

Currently due to affordability, adaptability and scalability tablets are among the hottest instances of technology in educational world. (Ozdamli, 2012). The computer industry has undergone a big revolution since this device was released to the market. It has been frequently advertised by the technology industry that tablets should be embraced by educational systems to enhance language teaching quality. The success of integrating

technological instruments in the classrooms depends to a large extent upon teachers and the way they incorporate them in their classes (Chen, Looi, & Chen, 2009). TBLT and technology have already passed the test of efficacy in improving four main language skills (Godwin-Jones, 2015; Kern, 2014, 2015). Up to now, there is evidence for the efficacy of using technology to enhance learner satisfaction (Kim & Frick, 2011), raise motivation (Furió, Juan, Seguí & Vivó, 2015), provide the ground for knowledge acquisition (Lai & Li, 2011) and enquiry-based learning (Hennessy & Cross, 2014). However, what is not yet clear is the role TBLT and technology can play collectively in terms of improving strategy use and fostering learner autonomy. When it comes to using mobile technology in education, a primary concern of teachers is exploring activities through which they can enhance learning and other learning variables (Burden, Hopkins, Male, Martin & Trala, 2012). The significance of the role played by teachers and their classroom practice in the efficacy of using tablets in classrooms is highlighted by Major, Hassler and Hennessy (2017) too.

On the other hand, with the expansion of technology and its entrance to the world of education, the majority of educational paradigms have shifted away from concentrating on teachers and teaching methodologies to learners and boosting their autonomy utilizing new technological tools. Autonomy is defined by Sinclair and Thang (2009) as the state whereby learners are committed and responsible for their own learning and hence for seeking new pieces of knowledge. According to Benson (2011) learner autonomy provides learners with some sort of drive to walk through the path of self-directed learning, where taking initiatives, monitoring one's progress, and evaluating one's individual learning outcomes are duties that all fall on the shoulder of learners.

Ciekanski (2007) maintains that learner autonomy grows out of learner-centered approaches and fully complies with their principle ideologies; it is a disguised goal in education and it simply aims at nurturing learners who are able to set objectives for themselves and pursue life-long learning. Taking into account the commonalities of TBLT and learner autonomy; namely, experiential learning philosophy, self-directed learning and active engagement in the process of learning, connecting TBLT and autonomy does make sense (Vieira, 2017).

In the performance of second/foreign language learning tasks, language learning strategies namely metacognitive, cognitive and social strategies play facilitating roles (Cohen, 2007; Oxford, 2011). Language learning strategies are processes which language learners choose while performing a language task in the target language, believing that these

processes facilitate their performance in the accomplishment of tasks and enhance their learning (Brown, 2006; Cohen, 2007; Grenfell & Macaro, 2007). Strategies could also serve as means to solve learning problems. They are the most frequent solutions learners resort to once they encounter a problem in any stage of their L2 acquisition (Dornyei, 2005). It is indisputable that language learning strategies potentially and strongly influence foreign language learning outcomes (Anderson, 2003; Chen, 2006; Samadi, 2008). Metacognitive strategies are of particular interest to this study as the pivotal role they play in reading comprehension achievement and the relation between these strategies and reading comprehension have already been established by Chan (2003), Singhal (2001) and Rastegar, Kermani and Khabir (2017), among others. Furthermore, according to Shang (2010) among three types of reading strategies (cognitive, metacognitive, compensation strategies), metacognitive strategies are the ones which are most frequently utilized by language learners.

Metacognitive strategies are focused in this study for some other benefits they can provide, including giving learners a clear picture of learning approaches, a proper understanding concerning what different tasks entail, and the ability to choose and modify strategies and acquisition methods that are best geared to their own learning strengths. Metacognitive strategies develop planning, monitoring and evaluating skills which can consequently lead to self-directed language learning. They also inform decisions taken in planning and monitoring processes throughout the completion of a task, e.g., self-observation, self-evaluation and the assessment of problems. Fleming and Walls (1998) considered metacognitive reading strategies as bearers of a number of merits in facilitating the learning process: enhancing learner motivation, increasing their level of tolerance and making them more engaged in learning specific skills to name a few. Overall, the use of metacognitive strategies leads to effective learning in general (Anderson, 2002).

Research has shown that through the implementation of different kinds of tasks and texts, L2 learners become highly capable of mastering literacy strategies (Shea & Roberts, 2016). On the other hand, the important role of applying learner-oriented techniques like: personalizing instruction, tuning up learning tasks to conform with learners' learning style and strategy preferences, encouraging learners toward self-initiation, and engaging learners in self-assessments throughout the learning process in the enhancement of language acquisition outcome in general and promoting reading comprehension skills in particular was emphasized by Wenden (2002). Utilizing these strategies, Wenden (2002) added, would bear both

short-term benefits and long-term benefits which eventually can lead to enhanced learner autonomy.

Considering the importance of flourishing autonomy in language learners and boosting their metacognitive strategy use as a prerequisite for the development of reading comprehension skill on the one hand ,and taking into account the potential of using technological devices to facilitate language teaching and learning on the other hand, the present study aimed at investigating the extent to which the implementation of tablet assisted task-based instruction can improve Iranian EFL learners' autonomy and metacognitive strategy use. Therefore, this study aimed to address the following questions:

1. To what extent does the implementation of technology-mediated task-based instruction in a reading course improve Iranian intermediate EFL learners' autonomy?
2. To what extent does implementing technology-mediated task-based instruction in a reading course improve Iranian intermediate EFL learners' metacognitive strategy use?

## **2. Literature Review**

Merging technology with language education is a common practice in the modern era. TBLT is among the best methodologies which allows for technology to reveal its potential in assisting learners. However, the relation between the two is reciprocal (Doughty & Long, 2003) in that technology also caters a venue for implementing TBLT principles. The importance of technology in the maturation of both theoretical and empirical aspects of TBLT was referred to by Lai and Li (2011).

In the light of Ortega's (2009) research findings, the theoretical and practical values of technology and task integration are recognized including enhancing motivation and authenticity, providing feedback, offering students choices. Moreover, since TBLT has been founded on the basis of constructivism, it maintains extreme focus on various non-linguistic aspects and features of learners such as L2 learning motivation, cognitive abilities and learner autonomy (Ellis, 2009; Robinson, 2011).

Similarly, evidence for the efficacy of the implementation of technology-mediated task based instruction was found in relation to the amount of language production (Yamada, 2009), increasing the opportunity for monitoring linguistic output (Smith, 2004), and greater general speaking proficiency (Payne & Whitney, 2002). Likewise, it has been reported that in technology-mediated task based instruction, teachers play a less authoritative

role throughout interactions (Beauvois, 1998; Kern, 1995); thereby, more opportunities are provided for learners to monitor their linguistic output (Kitade, 2000; Smith, 2004). The results of the study conducted by Lai and Zhao (2006) reveal that learners self-corrected more often when performing tasks in online text-based chatting situation compared to in face-to-face communication situations.

To integrate TBLT and technology, Chapelle (2001) proposes that technology-mediated tasks should be in line with the level and needs of language learners, follow authenticity and practicality principles and last but by no means least, they should focus on meaning, while simultaneously providing opportunities to direct learners' attention to form. In a similar vein, González-Lloret and Ortega (2014) enumerate the requirements of integrating TBLT and technology. They take the view that to reach this aim, tasks should be holistic, learner-centered, and consistent with learners' digital skills, instigating reflection on learning process.

Overall, the important role of applying learner-oriented techniques namely personalizing instruction, tuning up learning tasks to conform learners' learning style and strategy preferences, and encouraging learners toward self-initiation, and engaging learners in self-assessment throughout learning process in the enhancement of language acquisition outcomes in general and promoting reading comprehension skills in particular is emphasized by Wenden (2002). Utilizing these strategies, Wenden added, would bear both short-term and long run benefits, which finally leads to enhanced learner autonomy.

On the other hand, the role of new technologies to boost learner autonomy should not pass unnoticed. This role is not restricted to providing the practical means using which learners can have a more active and engaging role in setting their own objectives and determining syllabi, but they are allowed to choose the path and timing (Raya & Fernández, 2002). According to Barjami (2015) an autonomous learner can be considered as a learner who has already developed some language learning strategies and is able to control and monitor their own way of learning. According to Chan (2003) good readers make use of reading strategies more frequently in comparison with poor readers, especially they have mastery in using sophisticated cognitive and metacognitive strategies such as making prediction, rethinking a prior inference and noticing a discourse signal (Pressley, 2002). Similarly, Oxford (2011) conclusively contends that when learners use metacognitive strategies they are more creative and become more independent. The relationship among learner autonomy, language learning strategy use and personality traits was investigated by Nikoopour and Hajian (2015). The

results of this study indicate that a strong positive relationship exists among the three aforementioned variables.

Considering the fact that there is still paucity of research regarding the development of the use of learning strategies in task-based settings and especially in technology mediated task based instruction and the need for examining learner autonomy in task-based reading comprehension classrooms, the present study aimed to investigate the extent to which the implementation of technology mediated task-based instruction can improve both Iranian EFL learner's autonomy and metacognitive strategy use in reading comprehension.

### 3. Method

#### 3.1. Participants

One hundred seven language learners in 4 different intermediate classes in two language institutes in Shahrekord were given Oxford Quick Placement Test Version 2. Of this initial pool, 80 participants were selected based on the results of the placement test. They were divided into two experimental and control groups on a random basis, each group containing 40 participants in four different classes. All participants were female and their age ranged from 16 to 25. They were all native speakers of Persian. None of them knew that they will be members of a research project.

#### 3.2. Materials and Instruments

##### 3.2.1. Instrument 1

The first instrument used in the present study was Oxford Quick Placement Test Version 2 (QPT) utilized in order to measure the participants' proficiency level and check the homogeneity of the sample in terms of general English proficiency. Quick Placement Test Version 2 is a standard test consisting of 60 multiple-choice items on grammar and vocabulary. The time given for completing the test was 45 minutes. The scores range from 0 to 60. Table 1 illustrates how the proficiency levels are calculated based on the QPT scores.

Table 1

*Conversion Table of Oxford Quick Placement Test*

Total Score	Level	CEFR level
0-9	Beginner	A1
10-19	Elementary	A1+ to A2
20-29	Pre-intermediate	A2 + to B1
30-39	Intermediate	B1
40-49	Upper-intermediate	B2
50-60	Advanced	C1

### 3.2.2. Instrument 2

The second instrument used in the data collection procedure of this study was Learner Autonomy Questionnaire, which was used both as pretest and posttest to measure the participants' autonomy level. The questionnaire was developed by Egel (2003), and its internal consistency was reported to be .80 using Cronbach's Alpha Coefficient. In this study, the modified version of the questionnaire by Gholami (2016), suitable for Iranian context, was used. It was noted by Gholami that this questionnaire was "the most comprehensive one in terms of the number of dimensions and validity as compared to other questionnaires available in the area of learner autonomy as confirmed by many researchers in the field (Tilfarlioglu & Ciftci, 2011; Gömleksiz, & Bozpolat, 2012)." After piloting the questionnaire with 20 students, Gholami sought for expert opinions on the modified version of the questionnaire to ensure its content validity. Then, considering experts' judgement, some of the items were modified by Gholami. This modified version was piloted on a sample of 35 learners, and its internal consistency was measured. As Table 2 depicts, the Cronbach's Alpha Coefficient of 0.738 indicates that the questionnaire was reliable. Besides, the modified version went through expert judgement for content validity.

Table 2

*Reliability Statistics of Autonomy Questionnaire*

Cronbach's Alpha	N of Items
.738	44

This questionnaire includes 44 statements around nine dimensions about language learning process (e.g. learners' readiness for self-direction, independent effort in language learning, perceived importance of class/teacher, role of teacher, language learning activities assigned outside the class, selecting content, intrinsic motivation, assessment, interest in other cultures). These 44 items can show the degree of control learners have in each particular aspect of learning.

### 3.2.3. Instrument 3

Furthermore, in order to measure the metacognitive awareness of reading strategies in the experimental and control groups before and after the intervention, Metacognitive Awareness of Reading Strategies Inventory (MARSI) version 1.0 was used as the third instrument. This inventory was specifically designed to assess L2 learners' metacognitive awareness of reading strategies by Mokhtari and Reichard (2002). It contains 30 items covering three broad subcategories of strategies including: global reading, problem-solving, and support reading strategies. Before being administered



to the real sample, this inventory was administered to a pilot sample of 35 learners, and its internal consistency was measured. As Table 3.3 indicates, the Cronbach's Alpha yielded the Coefficient of 0.77 for this inventory, which demonstrates it has a high degree of reliability.

Table 3

*Reliability Statistics of Metacognitive Awareness Questionnaire*

Cronbach's Alpha	N of Items
.778	30

### 3.3. Procedure

#### 3.3.1. Pre-test

Initially, Oxford Quick Placement Test Version 2 was administered to 107 English learners studying in two private institutes in Shahrekord, Iran. The learners with scores between 30 and 39 were classified as learners with intermediate level of language proficiency and were admitted into the main sample of the study. These learners were randomly allocated to the control and experimental groups. Then, the entire selected participants were given a package of questionnaires including learner autonomy inventory and metacognitive awareness of reading strategies inventory as the pre-test. Subsequent to the administration of the pretest, the administration of the treatments began.

#### 3.3.2. Treatment

Throughout the course of this study, learners in all 4 classes studied reading passages of intermediate level selected from *Top Notch 3 A, Second Edition* (Saslow & Ascher, 2012), *Intermediate American Headway* (Soars & Soars, 2011), *Four Corners 3* (Richards & Bohlke, 2012), and *Intermediate Select Readings* (Lee & Gundersen, 2001). In the two classes of control group traditional explicit reading strategies instruction including: teaching skimming, scanning, predicting, inferencing, etc. was implemented, while in the experimental group, a technology-mediated task-based approach was designed to teach the reading materials, and a large number of tasks were designed and implemented.

In designing this technology mediated task-based approach, the researchers did their best to adhere to the following 5 major principles proposed by Nunan (1991) including 1) emphasis on acquisition of communicative competence through learners' interactive activities; 2) introducing real social activities into language teaching in classrooms; 3) incorporating relevant learning materials and more opportunities for the use of target language; 4) emphasis on the combination of personal learning

experience with communication; 5) relating language learned in the class with language used authentically out of class.

Examples of tasks given to the learners of the experimental classes include: describing, comparing and contrasting geographical location, culture and the climate of countries based on passages and shared electronic maps using Barefoot World Atlas app. The prerequisite for performing the above mentioned tasks is reading some passages about geographical location, climate and culture of different countries. Therefore, in contrast with our control group in which reading comprehension is practiced traditionally, in the experimental group learners develop their reading skill communicatively and their comprehension of the passage can be checked through communication which was necessary for performing the tasks, moreover they made use of technology in performing tasks. The other instance of tasks performed in the experimental group was narrating a prominent person's biography as well as their own autobiography using PicCOLLAGE app. Participants were provided with passages about the life of renowned characters in different countries and were asked to narrate their biographies. Another technology-mediated task was providing the opportunity for learners to talk with native speakers; for example, one of the texts was about applying to a university in a foreign country after reading this passage and take it as their model. As thus the students were connected through their tablets via skype technology to a native speaker to ask and answer questions about the prerequisites for application to a university, or for the other text which was about surgery and medical fields, learners were connected to a specialist to ask their questions about health issues, another example was role play, through using tablets, the teacher shared the same video for all the learners but in mute mode they were asked to speak instead of the characters of the movie. Therefore, in all the above-mentioned tasks reading passages were input provider and learners used them as the model of language. Following on from that, they got involved in communication made possible by the help of technology.

### *3.3.3. Post test*

One week after the final session of the treatment, the sample was asked to complete the learner autonomy questionnaire and metacognitive awareness of reading strategies inventory as posttest.

## **3.4. Data Analysis**

To check the homogeneity of the sample in terms of learner autonomy, learners' scores on the pretest were compared using an independent samples T-test. After ensuring that the two groups were at the same level of autonomy, ANCOVA was used to check whether or not

learners' scores on posttest underwent any significant changes. Then the researcher carried out the same processes for analyzing the efficiency of technology mediated task based instruction in improving metacognitive strategy use.

## 4. Results and Discussion

### 4.1. Results

Quantitative data were gathered to answer the aforementioned research questions. To ensure that both groups had an equal degree of learner autonomy prior to the implementation of technology-mediated reading comprehension tasks, the pre-test learner autonomy scores were analyzed through an independent samples t-test. There was no significant difference between control group's pretest learner autonomy scores (mean=2.85, SD=.35) and experimental group's pretest learner autonomy scores (mean=2.93, SD=.344). ( $p: 0.314 > 0.05$ ). After making sure that the two groups had almost equal degrees of autonomy, the participants in the experimental group received technology-mediated reading comprehension tasks, while those of the control group received traditional explicit reading strategy instruction. In order to determine whether the two groups of the study performed differently after the implementation of the experiment, the Analysis of Covariance (ANCOVA) was conducted. The  $p$  value for the scores of pretest was .709 which means that pretest scores did not have any effect on the scores of posttests. The  $p$  value for the scores of posttest, however, was 0.00, which suggests that there was a significant difference between experimental and control groups in terms of their scores in posttest. Based on the results shown in the Table 4, learners' performance in experimental group was different from performance of the student in control group.

Table 4

*Tests of Between-Subjects Effects on Learner Autonomy Posttest*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8.503 <sup>a</sup>	2	4.252	67.874	.000
Intercept	11.370	1	11.370	181.509	.000
Pretest	.009	1	.009	.140	.70
Group	8.446	1	8.446	134.834	.00
Error	4.823	77	.063		
Total	783.677	80			
Corrected Total	13.326	79			

There was a significant difference between the mean of experimental group (Mean= 3.42) and control group (mean= 2.77). The results of data analysis depicted that the implementation of technology-mediated reading comprehension tasks in a reading course does have a statistically significant impact on improving Iranian intermediate EFL learners' autonomy.

In order to analyze the data related to the second research question to ensure that the two groups initially had almost equal knowledge of metacognitive reading strategy use, prior to the implementation of the experiment, the pre-test scores of the two groups were analyzed through independent samples t-test. The mean and standard deviation for the scores of pretest scores of the two groups had little difference; (case group: 2.62) and (control group: 2.54). There was no significant difference between the two groups in terms of metacognitive reading strategy use prior to the implementation of the experiment. Based on the t-test results in Table 4.7 ( $p: 0.386 > 0.05$ ), there was no significant difference between groups in terms of the use of metacognitive reading strategies before the implementation of treatment.

In order to see whether the two groups of the study performed differently in terms of the use of metacognitive reading strategies after the implementation of experiment, the ANCOVA was used. In this regard, we defined the two groups as independent variable, the scores of pretest as control variable, and the scores of posttest as dependent variable.

In the following table, the output of the test is indicated. The  $p$  for pretest was .657, which indicates that the scores of pretest did not affect the scores of posttest significantly. Nevertheless, the  $p$  for group variable was 0.00, which shows that there was a meaningful difference between the scores of experimental and control groups.

Table 5

*Tests of Between-Subjects Effects on Metacognitive Strategy Posttest*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7.508 <sup>a</sup>	2	3.754	29.171	.000
Intercept	14.800	1	14.800	115.001	.000
Pretest	.025	1	.025	.198	.65
Group	7.326	1	7.326	56.922	.00
Error	9.910	77	.129		
Total	697.584	80			
Corrected Total	17.418	79			

There was a significant difference between the mean of experimental group (3.22) and that of control group (2.61) on the scores of post-tests. Therefore, learners of the experimental group outperformed those of the control group.

#### **4.2. Discussion**

This study examined the impacts of technology-mediated task-based instruction on fostering learner autonomy and the use of metacognitive strategies among Iranian intermediate EFL learners. With regard to the first question of the study, the analysis of the collected data depicted that the implementation of technology-mediated reading comprehension tasks does have a statistically significant impact on improving Iranian intermediate EFL learners' autonomy. According to Ciekanski, learner autonomy grows out of learner-centered approaches and fully complies with their principle ideologies; in other words, the basic ground for the enhancement of learner autonomy is planning, acting and checking each aspect of teaching process by taking into account who the learner is and what best caters to his/her needs. Given that task-based language teaching is a learner-centered approach where all the tasks are designed on the basis of learners' variables (e.g. age, sex, level, interests, etc.); it could be argued that it helped learners become more autonomous. In fact, the texts that learners were exposed to throughout the treatment in this study provided them with appropriate models to follow.

Another reason that could be offered to explain why technology-mediated reading comprehension tasks enhanced learner autonomy in this study is that creating stimulating learning conditions that boost interaction and cooperation among learners result in the cultivation of learner autonomy (Lee, 2016). In addition, Nunan (1991) asserts that the combination of personal learning experience with communication and relating learning to the real world matters is a key feature of TBLT which is also another facilitator of learner autonomy.

In this study, learners of the treatment group were provided with numerous situations where they could relate their linguistic input to the real world (e.g. share a piece of experience similar to what they have read in the passage, how they would react or decide differently, compare the story/material in the passage with the last story/article they had read, comparing the characters in the article with someone around them, etc.) or interact and collaborate with each other to accomplish something (posing as a group of charity donors and deciding how to spend a charity budget or issuing a verdict as a jury to convict or exonerate an ecological terrorist). Therefore, in the treatment of this study, performing various tasks on reading

passages created a chance for the learners to engage in interactions, collaborate and experience simulated real-life give and take, have a shared learning experience by relying on their own language resources (Ellis, 2003), and monitor the negotiation of meaning up to the point where a mutual achievement (e.g. a decision, a verdict) is accomplished. These are precisely the elements that boost autonomy.

Another justification for the effect of technology mediated tasks on learner autonomy is the fact that technology makes it easy to have access to a wide variety of texts, audios and videos. More important than that is the probability of embedding texts with multi-media which provides the ground for language learners to put into practice their knowledge by reflecting on their errors and building new strategies resulting from trial and error. In this way learners build their own strategies and experience conceptual learning through the process of experimentation (Raya & Fernández, 2001), as a result student can get involved in their own learning more reflectively.

Besides, according to Samuda and Bygate (2008), tasks provide learners with a learning experience that involves both the process and the product. Hence, it could be argued that going through the process through tasks fortifies learners' skills of setting goals, planning and monitoring, and directing themselves to achieve it, and the product fortifies learners' skills of determining whether or not the achievement has happened. Therefore, through tasks, learners automatically develop ground for themselves to become autonomous since autonomy demands setting goals, planning learning, decision making on the content material, assessment of learning (Holec, 1981). The impact of tasks, nevertheless, on promoting learners' interest to develop learner autonomy should not be neglected (Levy & Stockwell, 2006).

The finding of the present study regarding the effect of TBLT on learner autonomy was in line with the results of the study conducted by Ghodrati, Ashraf and Motallebzadeh (2014). The results of this study regarding the first question were also in line with the results of the study of Vieira (2017) in that TBLT as a learner centered approach has the potential to cause change in education and transform the role of learners into autonomous ones. However, in this study teacher education and the cultural aspects of the context were referred to as decisive factors determining the outcome. Also our findings confirm the results of the study conducted by Lee (2016) which was concerned with the effect of the implementation of online tasks and integration of technology and digital tools in classroom environment to improve learner's autonomy.

With regard to the second question, the analysis of the data also highlighted that the implementation of technology-mediated reading comprehension tasks does have a statistically significant impact on improving Iranian intermediate EFL learners' metacognitive strategy use. The main rationale behind this impact is that learning through tasks increases learners' consciousness with regard to specific features of task performance (Ellis, 2006). Admittedly, an increase in this type of awareness increases learners' ability to use metacognitive strategies, since metacognitive strategies mainly deal with planning, monitoring, evaluating, and regulation of leaning (O'Malley & Chamot, 1990). The more learners are conscious of task performance features, the more effectively they can strategize to accomplish it. Besides, according to Wang (2011), reflectivity, personal involvement and active engagement play a crucial role in task-based instruction; and it is evident that being engaged in a task and reflecting over the quality of that engagement and how that engagement could be better are the exact elements that boost learners' knowledge of learning strategies – particularly metacognitive strategies – that are best geared to them. Willis and Willis (2007) confirmed this by emphasizing that tasks personalize learning. The results of the study can be explained by the fact that when technology and multi-media are incorporated in the classrooms instructors can present information in multiple formats, consequently it allows learners to experience different learning styles (Karakaya, Ainscough, & Chopoorian, 2001) and it can also lead to deeper learning.

The results of this study were in line with the study conducted by Chou (2016), concentrating on the effect of TBLT instruction on the development of metacognitive strategy use in listening comprehension skill. The results of this study depicted that embedding metacognitive strategies in listening comprehension tasks instead of direct instruction of strategies by teacher was helpful to develop intermediate Chinese metacognitive awareness. Therefore, the findings related to the second question were in line with the results of Chou (2016). The results of this study also confirmed the results of study conducted by Chang, Lan, Chien, Chang, and Sung (2010) on the efficacy of using mobile devices to help teachers in strategy instruction and increasing interaction among Chinese learners in reading comprehension.

Even though the results of the present study are not generalizable to all learners and all learning conditions, due to the limitations, further research is required to illuminate this topic in full capacity. As thus, the findings suggest that the implemented tasks in this study can be an effective choice in Iranian ELT context when learners are at intermediate level. Implementing these tasks can assist in promoting learners' autonomy and metacognitive strategy use.

As stated by O'Malley and Chamot (1990), the use of strategies is culture-bound and the same goes for autonomy. Gao (2005) stated that definitions of autonomy might vary in different cultures; yet, the present study confirmed that autonomy and metacognitive strategy use, the way Iranian learners define them and use them, could be enhanced as long as technology mediated task-based methods of language learning are implemented in language classrooms. What makes TBLT even a more proper choice for Iranian ELT context is that according to Hadi (2011), Iranian language teachers are highly aware of TBLT principles, harbor positive attitudes regarding TBLT and deem TBLT to be a practical and effective approach to L2 instruction. It should be added that publishing the results of the present study will make valuable contributions to promoting the popularity of TBLT especially technology mediated TBLT among Iranian L2 teachers and make their attitudes toward it even more positive.

## **5. Conclusion and Implications**

The results of the present study offer useful implications for teaching foreign languages in general and reading comprehension skill in particular. They could also prove to be practical for teacher trainers, material developers and course book designers since based on the data reported in this study, the incorporation of technology mediated tasks implemented in this study can improve learner autonomy and metacognitive strategy use in reading comprehension skill. If teachers utilize these tasks in their classrooms, material developers embed them in reading comprehension materials and teacher trainers educate EFL teachers the way these tasks can be implemented in the classrooms learners will experience a new rewarding way of practicing reading comprehension which involves communication accompanied by responsibility and strategy use. Likewise, the results of this study extends pedagogical implications for any course that involves a large load of reading material (e.g. courses on reading journalistic passages, short story reading classes, translation classes and ESP classes). It is recommended that technology mediated tasks be integrated in reading comprehensions materials to turn the role of the learners from a receiver of information to an analyzer and autonomous one. The limitations of this study could be taken into consideration for future research. Firstly, learner autonomy is a culture-bound concept (Sinclair, 2006), and hence, the findings of the present study cannot be generalized beyond the Iranian EFL context. The same is true for female learners and learners of intermediate general English proficiency level, as they were the main focus of this study and the results could not be generalized to male learners or learners of other proficiency levels. Secondly, in the present study, the data were collected via questionnaire and inventories



only, so this research can be replicated using other means of data collection such as observation.

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**Appendix A: Learner Autonomy Questionnaire**

Name: ..... Time of the Class.....

Age: ..... Educational background .....

Direction: Please check the one closest answer to the following questions according to your true cases. Thank you very much for your help and patience.

- 5= Always True
- 4= Mostly True
- 3= Sometimes True
- 2= Rarely True
- 1= Never True

1(1)	I usually set my own goal for each semester.						
2(2)	I use other English books and resources on my own will.						
3(1)	When I hear someone talking in English, I listen very carefully.						
4(1)	I want to talk in English with my family or friends.						
5(2)	I enjoy learning a grammatical point on my own.						
6(2)	While learning English, I like activities in which I can learn on my own.						
7(2)	I like trying new things while I am learning English.						
8(3)	I am afraid that I won't learn a topic if the teacher doesn't explain it in the English class.						
9(4)	I learn better when the teacher explains something on the board.						
10(2)	I use my own methods to learn vocabulary in English.						
11(3)	I feel confident when the teacher is beside me while I am learning English.						
12(3)	I can learn the English grammar on my own/ without needing a						

	teacher.					
13(3)	My teacher always has to guide me in learning English.					
14(4)	While learning English, I like activities in which I can learn on my own.					
15(4)	I feel happy when my teacher explains very detail of English.					
16(1)	In the future, I would like to continue learning English on my own/without a teacher.					
17(5)	In the English lesson, I like projects where I can work with other students.					
18(3)	I can learn the English grammar on my own/ without needing a teacher.					
19(3)	My teacher always has to guide me in learning English.					
20(2)	While learning English I would like my teacher to repeat grammatical rules.					
21(4)	I feel happy when my teacher explains very detail of English.					
22(4)	In the future, I would like to continue learning English on my own/without a teacher.					
23(5)	In the English lesson, I like projects where I can work with other students.					
24(5)	In fact, I like to listen and read in English outside of the classroom.					
25(6)	I would like to select the materials for my foreign language lessons.					
29(6)	I would like to share the responsibility of deciding what to do in the English lesson.					
27(3)	I know how I can learn English the best.					
28(1)	If I haven't learnt something in my English lesson, I am responsible for it.					
29(6)	I would like to choose the content of what is to be taught in the English lesson.					
30(8)	The teacher should give me regular test.					
31(7)	I like English because I like it to speak English.					
32(1)	I know my weaknesses and go for it.					
33(7)	I believe that I will reach a good level in the English language.					
34(8)	Every time I have an assignment, the teacher should score or correct it.					
35(2)	I think that I learn English better when I work on my own.					
36(3)	My language learning success depends on what I do in classroom.					
37(5)	I find it more useful to work with my friends than working on my own for the English lesson.					
38(8)	I do the English lesson activities only when my teacher is going to grade me.					
39(8)	I have my own ways of testing how much I have learned.					
40(7)	I can be a fluent English speaker in future.					
41(9)	I try to understand the jokes and riddles of the foreign language					
42(9)	I also investigate the culture of the foreign language I am learning.					
43(9)	I also investigate the idioms and sayings of the foreign language I					

	am learning.					
44(9)	I ask people who have lived abroad about the lifestyles of the people living there.					

**Appendix B: Metacognitive Awareness of Reading Strategies Inventory (MARSİ) Version 1.0** Kouider Mokhtari and Carla Reichard (2002)

Direction: Listed below are statements about what people do when they read academic or school related materials such as textbooks, library books, etc. Five numbers follow each statement (1, 2, 3, 4, 5).

and each number means the following:

- **1** means "I **never or almost never** do this."
- **2** means "I do this **only occasionally**."
- **3** means "I **sometimes** do this." (About **50%** of the time.)
- **4** means "I **usually** do this."
- **5** means "I **always or almost always** do this."

After reading each statement, **circle the number** (1, 2, 3, 4, or 5) that applies to you using the scale provided. Please note that there are **no right or wrong answers** to the statements in this inventory.

TYPE	STRATEGIES	SCALE				
GLOB	1.I have a purpose in mind when I read.					
SUP	2.I take notes while reading to help me understand what I read.					
GLOB	3.I think about what I know to help me understand what I read.					
GLOB	4.I preview the text to see what it's about before reading it.					
SUP	5.When text becomes difficult, I read aloud to help me understand what I read.					
SUP	6.I summarize what I read to reflect on important information in the text.					
GLOB	7.I think about whether the content of the text fits my reading purpose.					
PROB	8.I read slowly but careful to be sure I understand what I'm reading.					
SUP	9. I discuss what I read with others to check my understanding.					
GLOB	10. I skim the text first by noting characteristics like length and organization.					
PROB	11. I try to get back on track when I lose concentration.					
SUP	12. I underline or circle information in the text to help me remember it.					
PROB	13. I adjust my reading speed according to what I'm reading.					
GLOB	14. I decide what to read closely and what to ignore.					



SUP	15. I use reference materials such as dictionaries to help me understand what I read.					
PROB	16. When text becomes difficult I pay closer attention to what I'm reading.					
GLOB	17. I use tables, figures and pictures in text to increase my understanding.					
PROB	18. I stop from time to time and think about what I'm reading.					
GLOB	19. I use context clues to help me better understand what I'm reading.					
SUP	20. I paraphrase (restate ideas in my own words) to better understand what I read.					
PROB	21. I try to picture or visualize information to help remember what I read.					
GLOB	22. I use typographical aids like boldface and italics to identify key information.					
GLOB	23. I critically analyze and evaluate the information presented in the text.					
SUP	24. I go back and forth in the text to find relationships among ideas in it.					
GLOB	25. I check my understanding when I come across conflicting information.					
GLOB	26. I try to guess what the material is about when I read.					
PROB	27. When text becomes difficult, I re-read to increase my understanding.					
SUP	28. I ask myself questions I like to have answered in the text.					
GLOB	29. I check to see my guesses about the text are right or wrong					
PROB	30. I try to guess the meaning of unknown words or phrases.					

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***Bibliographic information of this paper for citing:***

Mehri, M, & Tavakoli, M. (2020). The effect of technology-mediated reading comprehension tasks on autonomy and metacognitive strategy use by Iranian EFL intermediate learners. *Journal of Modern Research in English language studies*, 7(3), 45-69.

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