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# Technology Integration Designed to Scaffold 5th Graders in Task-Based Language Teaching*

# Görev Temelli Dil Öğretiminde Beşinci Sınıf Öğrencilerini Desteklemek için Tasarlanmış Teknoloji Entegrasyonu

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**Abstract**: The purpose of this study was to develop, implement, and evaluate technology enhanced scaffolding design in Task Based Language Teaching (TBLT) for English beginner level students at a middle school with a limited technology infrastructure and low socioeconomic profile. The implementation's effectiveness was assessed by a comparison of data obtained by researcher-designed pre and posttests from 38 fifth graders in a control and experimental group, as well as an analysis of the latter's responses to classroom tasks and feedback questions collected periodically. While both groups progressed in the key leaning objectives, the experimental group significantly outperformed the control in the posttest. Paired samples comparisons showed that the learners in the experimental group improved their test scores significantly in all the subtests, while those in the control showed a significant increase only in vocabulary questions. The additional descriptive analysis of the qualitative data collected from the experimental group provided evidence for how this difference occurred. Based on the findings of the study, an amendment to the guidelines for scaffolding design software is suggested from the perspective of teaching English as a Foreign Language (EFL) in limited technology contexts.
***Keywords:*** Technology integrated TBLT, scaffolding software design in EFL, limited technology context, elementary EFL learners in the Turkish context.

**Öz:** Bu çalışmanın amacı, kısıtlı bir teknoloji altyapısı olan ve düşük sosyo ekonomik profile sahip bir ortaokulda İngilizce başlangıç düzeyi öğrencileri için teknoloji destekleriyle beslenmiş görev temelli dil öğretimi tasarlamak, geliştirmek, uygulamak ve değerlendirmektir. Uygulamanın etkililiği, bir kontrol ve deney grubundaki 38 beşinci sınıf öğrencisinin araştırmacı tarafından tasarlanmış ön ve son testlerden elde edilen verilerinin karşılaştırılması ve deney grubu öğrencilerinin sınıf görevlerine ve periyodik olarak toplanan geribildirim sorularına verdiği yanıtların analizi ile değerlendirilmiştir. Her iki grup da öğrenme kazanımları bakımından ilerleme gösterirken, deney grubu öğrencileri son testte kontrol grubu öğrencilerinden önemli ölçüde daha iyi performans göstermişlerdir. Eşleştirilmiş örneklem karşılaştırmaları, deney grubundaki öğrencilerin tüm alt testlerde puanlarını önemli ölçüde iyileştirdiğini, kontrol grubundakilerin ise yalnızca kelime dağarcığı sorularından aldıkları puanlarda anlamlı bir artış gösterdiğini ortaya çıkarmıştır. Deney grubundan toplanan nitel verilerle yapılan ilave tanımlayıcı analiz, bu farkın nasıl oluştuğuna dair göstergeler sunmaktadır. Çalışmanın bulgularına dayanarak, kısıtlı teknoloji altyapısı bağlamında İngilizce'nin yabancı dil olarak öğetimi açısından dijital destekleme tasarım ilkelerine bazı tashih önerileri getirilmiştir.
***Anahtar Kelimeler:*** Teknolojiyle bütünleşik görev temelli dil öğretimi, ingilizce öğretiminde dijital destekleme tasarımı, kısıtlı teknoloji bağlamı, ingilizce temel düzey.

## Introduction

The abundance of educational software and web resources for teaching English as a Foreign Language (EFL) has not made it easier for the EFL teacher to engage students in learning tasks, when instructional design is not guided by research-based principles. The need for guidance in teachers' instructional design efforts was also evident in the emergency remote teaching (Hodges et al., 2020) mandated around the world during the pandemic of 2020-2021.

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The success of foreign language teaching seems to depend also on the learners' motivation and the degree to which they can be engaged (Alhamami, 2018; Dewaele 2019; Sylven, 2017). Using the target language for genuine communication aligned with the learners' needs and interests seems to enhance motivation for language learning (Godwin-Jones, 2018; Lamb & Arisandy, 2020). However, constructing even a simple sentence can be a remarkable feat at the lowest levels of proficiency, which renders communicative acts stressful. Task Based Language Teaching (TBLT) can be useful here, since it aims to create authentic tasks for target language use with an actual communication purpose based on learner needs and interests. Such an approach would provide learners with an achievable goal, as Krashen (1982) argued, and direct them to language output with a real function. However, there seems to be a tendency to apply this method only partially in the classroom—tasks designed for teaching EFL may not always conform to the task design requirements of TBLT (Aydın & Yldız, 2014), or some TBLT principles may have been totally ignored, depending on the experience of the teacher (Vandommele et al., 2020). In a similar vein, most technology integration attempts seem to offer only an added layer of features, such as presentation of material electronically, or playing vocabulary games online, usually with little integration of the learning goals. This is mainly because having technology access in the language classroom will not necessarily result in meaningful integration with learning, when careful task planning is missing (Lozano & Izquierdo, 2019).

Yet, a well-designed task-based learning environment that makes appropriate use of the affordances of technology can offer multiple opportunities for purposeful language output. Although TBLT has been studied widely over the last two decades, research mostly focused on a task phase, rather than whole task-based lessons (e.g. Ellis, 2017; Lambert & Kormos (2014), and technology-integrated studies involved mostly more advanced, usually college level learners (e.g. Chen 2019, Oskoz & Elola, 2014; Solares, 2014). This study aimed to employ affordances of technology by carefully designed language activities based on TBLT and scaffolding framework for learning software (Quintana et al. 2004), implemented in a station rotation model. The purpose was to create a meaningful EFL learning environment for fifth graders from a low socioeconomic background in a limited technology classroom context. A recent review of research in TBLT showed that the studies mostly focused on the pre-task and main task phases, with little attention to follow up tasks (Ellis, 2017). Unlike the majority of the studies, an entire implementation was assessed in this study.

## Conceptual framework

### *The TBLT approach in foreign language instruction*

TBLT is considered an established approach in language teaching (Richards & Rogers, 2014) that focuses on meaning-making by providing opportunities to engage with language through negotiation (Ellis et al., 2020). The tasks must motivate learners to accomplish a final goal, but the process is most significant, rather than the goal itself. According to Candlin (2009) a task is made up of problem offering activities organized around a goal that allow learners to explore, interact, and collaborate with each other and the teacher. Learners observe and use the language in a daily context rather than focusing solely on structures in formal language instruction (Norris, Bygate & Van den Branden, 2009). Therefore, TBLT tends to make use of realia of many sorts, such as newspaper clips, TV shows, and websites.

The theoretical foundations of TBLT rest on the schema theory adopted in the studies of communicative effectiveness by Estaire and Zanon (1994), as well as Yule (1997), and the theoretical frameworks suggested by Ellis (2003) for TBLT. Based on these, Nunan (2004) identified the principles on which TBLT is built: scaffolding, task dependency, recycling, active learning, integration, reproduction to creation, and reflection. Scaffolding emphasizes the need to provide sufficient help when necessary to enable learners to develop the target skill. Tasks should be designed so that each can be implemented independently, but they should makesense as a whole when brought together. A target form should be recycled, i.e. used in different ways, so

that the learners see how it operates in different situations. Active learning suggests that target skills are best acquired by performing the action. Integration of a target form will relate it with its role in communication. Reproduction to creation emphasizes the need to motivate the learners to create new language forms rather than reproduce the previous examples. Finally, learners should be provided an environment where they can reflect on their own performances.

In his seminal work on TBLT, Ellis (2003) identified five features for task design: goal, input, condition, procedures, and predicted outcomes. A task should have a clear objective and procedures, learners should be provided with verbal or non-verbal information, and the predicted outcome can either be a product or process. Such a task should have distinctive features that set it apart from a regular exercise. According to Nunan (2004) these features are meaning, goal, and outcome, and while an exercise is directed towards a language form necessary for communication, a task assumes that communication is the means to acquire a skill.

When a second or foreign language lesson is designed based on this approach, it must comprise three phases (Ellis, 2003, Ellis et al., 2020). A pre-task phase forms the framework for the goal the learners will reach, as an advance organizer would in a technology integrated class. The activities in this phase intend to activate prior knowledge or help learners' performance in the main task, during which they may plan how to proceed, and choose what to focus on. In the post-task phase, learners work on follow-up activities with repetition and reflection. This categorization is similar to Willis and Willis' (2007) introductory priming and preparation tasks, followed by a target task, where real language output is expected.

***Technology integration in TBLT and the Turkish context***

To enhance learning through collaboration and negotiation for meaning, the affordances of technology must be aligned with learning goals and learner needs. The role of technology in TBLT has been researched to assess how digital technologies were employed to accomplish meaningful tasks in language learning (González-Lloret, 2014). However, it is important to note the difference between well-designed technology integration in TBLT and technology's conventional use as an add-on in a language lesson or for online delivery of drill-and-practice exercises (Chapell, 2014). As a recent review of task-based technology-integration by Lozano and Izquierdo (2019) shows, having access to technology does not guarantee using it effectively aligned with learning goals.

Most of the studies in technology integrated TBLT tended to target older students, and mostly writing skills. For example, Solares (2014) compared three instructional techniques in three groups of college students. One group received technology integrated TBLT, another group only TBLT, and the control received instruction based on the textbook. The students in the technology integrated TBLT group used multimedia materials, created blogs and web based posters. The TBLT group used paper and pencil materials to accomplish tasks, while the control group was taught through textbook-based activities. The posttest scores did not show significant differences although the mean scores were higher in the experimental groups. However, the analysis of the qualitative data revealed that the participants in the latter were more motivated on tasks, and less worried about making mistakes.

In another study with college students, Oskoz and Elola (2014) analyzed collaborative writing tasks through wikis, where the participants composed expository and argumentative essays. The findings showed that online chat and wiki collaboration increased peer scaffolding. The wiki use allowed multiple editing of grammar and vocabulary, while chat increased on-task behavior. Similarly, Chen (2019) studied the effects of technology mediated TBLT on college learners' speaking skills. The students produced collaborative short videos in small groups over a semester, and the results showed that the participants' performance increased, and they welcomed the shift from teacher centered activities to learner collaboration.

Despite the dominance of college or high school level participants in TBLT research, the TBLT model can be appropriate even for complete beginners (Ellis, 2020; Pinter, 2015), provided that the initial tasks are input-based, forming the foundation on which language learning can be built (Long, 2015). Ellis (2020) argued that the TBLT approach is consistent with early L2 acquisition, as a growing body of literature in TBLT with child learners showed learning gains in comprehension, vocabulary, and acquisition of the plural *-s* in the English language. One of the researchers who worked with younger learners, Shintani (2016), found that Japanese 6-7 year olds in the task and input-based group outperformed their peers in vocabulary and acquisition of the plural *-s* in English. In an earlier study of technology integrated TBLT with Korean seventh graders, Park (2010) compared pre- and post-test scores on task-based writing, grammar, and reading comprehension tests. Technology integration included online writing, e-pal and PowerPoint projects. The results showed that the experimental group scored significantly higher in both task-based and traditional grammar test. The participants in the experimental group also indicated that using tasks were effective and motivating. Based on recent reviews of TBLT research conducted with child learners (e.g. Long, 2015; Oliver & Azkarai, 2017; Pinter, 2014), Ellis (2020) asserted that TBLT can be a beneficial model of language teaching for beginners and younger learners, especially when input-based tasks are designed, and output-based tasks are kept limited in number and scope.

Studies in technology-integrated TBLT in the Turkish context increased recently, as the dominance of the Computer Assisted Language Learning (CALL) tradition has lessened in technology integrated language teaching in the Turkish context. Aydın and Yıldız (2014) examined the use of wikis in order to develop collaborative writing skills with 34 college level learners in Turkey. The participants were required to complete three types of writing tasks, argumentative, informative, and decision making. Based on the analyses of the wikis, interviews, and questionnaires, it was found that argumentative writing allowed for more peer-correction than the other tasks, while the informative format promoted self-correction. Wiki use was interpreted as directing learners to accurate use of grammatical structures when the focus was conveying meaning, and not accuracy. Additionally, the students reported improvements on their writing skills and enjoying wikis for language learning.

In another study with college level learners, Kırkgöz (2011) focused on speaking, rather than writing skills. In a blended learning environment, lesson time was dedicated to task based speaking activities, and giving feedback to the students' video recordings captured outside class. A rubric-based scoring showed that the students demonstrated significant development in oral skills. They also had positive attitudes about language learning via video recording tasks with opportunities for self-correction. Similarly, Özdener and Satar (2008) worked with adult learners in TBLT, though with a slightly different focus. They studied the use of Computer-Mediated Communication (CMC) with prospective EFL teachers enrolled in a distance education program. As the program basically relied on text based materials and lecture videos, the student teachers lacked an environment to communicate with each other in the target language. Therefore, a learning environment was designed where the participants worked in pairs and used CMC tools to chat synchronously to complete a variety of language tasks. The analysis of online chat records revealed that most of the conversation was carried in English, however, the researchers did not measure language use and accuracy. The participants expressed that they enjoyed communicating with a classmate over chat in an anxiety-free environment.

As illustrated in the studies above, it seems that technology integrated TBLT was studied in the Turkish context at the tertiary level, sometimes with a focus on learner attitude. There seems a need for research with more varied student profiles, and at lower levels of language proficiency, in line with recent suggestions from Ellis (2020) and Pinter (2019) for TBLT implementation with younger learners. In addition, technology integration must offer more than an add-on, and help create a space of meaning-making where affordances of technology serve as scaffolds to achieve

a purpose. In this study, an attempt was made to adhere not only to the TBLT framework, but also to scaffolding software design guidelines.

***Scaffolding design framework and scaffolds in language learning***

The design of technology mediation in this study was based on the scaffolding design framework developed by Quintana et al. (2004), who proposed seven guidelines to help learners in three major processes: sense making, process management, and articulation and reflection. Although initially identified for science inquiry learning, some of the guidelines are also applicable for designing scaffolds in teaching EFL since these processes also take place in language learning, and scaffolding is widely recommended in language teaching.

In Quintana et al. (2004)'s framework, sense making is the process in which learners form hypotheses, make comparisons and observations, analyze the results and draw conclusions. When learners face difficulty, the software will help with alternative representations and language that learners can examine to uncover necessary properties. Descriptions of concepts are provided, and visual organizers form connections to what the learner already knows. Process management refers to planning and making decisions. The software will assist learners to determine relevant next steps, and ease the burden of accomplishing some tasks by automating them where appropriate. Finally, scaffolding should help the process of articulation and reflection, i.e. the process of drawing conclusions and making inferences. When learners have difficulty in explaining their ideas and making sufficient conclusions, software components facilitate this process (Quintana et al., 2004; Reiser, 2004).

These guidelines partially overlap with recommendations for scaffolding in language learning environments. For example, Gibbons (2014) suggests constructing a semantic web of what students currently know, supplying a meaningful context for collaborative language use, making the level cognitively appropriate, and teaching in multiple modalities. The TBLT processes such as preparing pre-activities to make the main task familiar, having multiple representations, allowing space for learners to reflect on their own work also match some of the guidelines.

Other researchers also identified the need for appropriate design of scaffolds in technology enhanced learning environments (e.g. Kim & Hannafin, 2011; Saye & Brush, 2002; Tabak, 2004). Sharma and Hannafin (2007) suggested that computer-based scaffolding should consider cognitive and interface design aspects, adapted from Saye and Brush's (2002) idea of hard and soft scaffolds. Hard scaffolds are defined as those provided by the tool itself, with fixed functions to help usually on the surface, while soft scaffolds are primarily given by a more able peer or an expert, and can be adjusted to the learner's needs or performance. As suggested by Sharma and Hannafin (2007), students would benefit most when the design of a learning environment brings hard and soft scaffolding features together. To aid the cognitive and metacognitive processes more explicitly, the tool should allow learners to work iteratively, provide different resources for the same goal, diversify illustrations, and emphasize the target structures.

In a recent study of how English language teachers supported student learning, Mahan (2022) found that while teachers tended to scaffold comprehension, they provided few strategies to solve tasks, and she called for more specifically defined scaffolded learning activities. However, finding time to provide the necessary scaffolding for each student is challenging, especially in overcrowded classrooms. Adopting Quintana et al. (2004)'s scaffolding design guidelines in the design of technology integrated TBLT can bring the 'hard' scaffolds provided by the technology closer to the 'soft' scaffolding, in an effort to make up for the insufficient teacher support in the language classroom.

## Method

This study has a pretest-posttest quasi-experimental design, with one experimental and one control group. Intact groups were chosen randomly as treatment and control (Creswell, 2012), since it was not possible to interfere with the school administration's classroom assignment.

The following research questions were addressed in the study:

1. Is there a significant difference between the test scores of the technology integrated TBLT group and the control group at the end of the unit covered?
2. To what extent does the e-books' design aligned with the scaffolding software design guidelines support the development of the experimental groups' language learning?
3. What are the students' perceptions of the technology integrated TBLT implementation?

### Participants

The participants were 38 fifth graders in a public school located in an impoverished neighborhood in Istanbul, who attended a voluntary afterschool program offered by their school, where the first author worked as an English teacher. There were 19 students in each group,14 female and 5 males in the TBLT group, and 11 female and 8 males in the control, with 10-11 years of age. All were beginner level learners, as they were fifth graders who had not taken EFL courses yet. The majority of the children came from a low socioeconomic background, based on the schools' records on parental income. It was evident from the children's prior work with the teacher that they were not familiar with internet search or typing on the computer.

### Data collection instruments

The data collection phase was preceded by a period of instructional design and development, as this study involved a technology integrated intervention. During this phase, data collection instruments were also developed. Therefore, the following sub-sections describe instructional design and technology integration as well as instruments used for data collection.

#### *Instructional design and implementation*

A unit on "Animal Shelter" to teach the present continuous tense was selected from the 5th grade English curriculum, mandated by the Turkish Ministery of National Education (MoNE). Technology mediated collaborative TBLT activities and interactive e-books were developed addressing the grammatical structures and vocabulary covered in the unit. The design of activities and tasks followed Ellis's (2003) five criteria for task design, which are planning goals, input, condition, procedure, and predicted outcomes. Each was evaluated against Nunan's (2004) sequence of designing pedagogical tasks, to make sure that it aligned with the principles of TBLT design.

The implementation was carried out in two phases, and lasted five weeks, two sessions each week. Each session lasted 40 minutes. At the beginning of the first phase, a practice session was conducted to familiarize the students with the station rotation model and typing on the keyboard, which showed that writing tasks would require concrete prompts, such as sentence starters or otherdirectives.

The first four sessions constituted the preparatory phase of TBLT, and were carried out in a station rotation model of blended learning (Horn & Staker, 2014). In this phase, the students practiced how to form sentences, gather information, and reach necessary resources for writing about endangered animals, before they embarked on the task of creating a blog. There were five work stations, each focusing on a skill; reading, writing, vocabulary, grammar, and listening, with specific instructions at each. The stations were visited in groups of four. At the reading station the students individually read interactive e-books designed for this study on laptops brought by the teacher. The other stations were based on the content of the ebooks, all aligned with the "Animal Shelter" unit in the 5$^{th}$ grade curriculum. Each activity had its own objectives, and also lead to the

main task of the project. To exemplify, the first session consisted of five tasks, designed around a chart filling activity, focusing respectively on vocabulary, grammar, reading and listening skills. In each task, students completed questions and gathered information to write on the chart. At the end of the session, after the groups had visited each station, they were expected to note down every missing information on the chart to complete the task.

The second phase comprised the main and post tasks in TBLT, and lasted 5 sessions. The main task was to prepare an informative blog about endangered animals for readers with limited English. This was designed as an actual communication task, and its rationale was discussed in detail with children: the majority of reliable web sources on endangered animals is in English and they are therefore inaccessible to people with limited English. The children would target limited-English readers and use simple sentence structure and vocabulary, as they were beginners themselves. The final products were five blogs prepared collaboratively in groups of 4, using Blogger.com.

Each blog included 4 entries, and each group member completed only one part of a sentence in each entry, so each entry consisted of 2-3 simple sentences, based on the number of group members. Student writing was supported with prompts such as sentence starters or directive questions, because free writing proved impossible during the initial try out. Due to limited typing skills, the students completed the task first on paper, and then copied to their blog. This also helped organize the group members' work around the computer, since there was only one computer per group. The last session consisted of a speaking task to wrap up the unit and give a chance for oral production. During the same time period of five weeks, the control group, taught by the same teacher, studied the same thematic unit, with the same learning objectives and target grammar structures as in the experimental group. As in Solares's study (2014), the control group received regular instructional activities in the textbook on "Animals" based on the official curriculum, which is more form focused, with some explicit grammar teaching, compared to TBLT. The e-books and online activities were made accessible to the control group after the study.

***Technology integration and scaffolding design***

The technology-based activities were all designed by the teacher-researcher. The e-books were developed in Articulate Storyline. Their design was grounded on Quintana (2004)'s scaffolding principles, to provide multiple opportunities for noticing the target vocabulary and grammar structures. As one of the scaffolds, glossaries used both L2 and L1 based on the type of vocabulary, since help provided in L1 may facilitate comprehension at the lowest proficiency levels (e.g Joyce, 2015; Laufer & Girsai, 2008). Interactive drag and drop or multiple choice questions addressed vocabulary, grammar, and comprehension, with explanatory feedback. Grammatical functions were highlighted to help the users notice inflections. Hence the e-books provided grammar instruction both directly and indirectly, and the input was intended to lead to the main task of blog writing. Each e-book was evaluated by an expert in educational technology, and revisions were made accordingly to validate the scaffolding design.

In addition, Blogger was used to create group blogs in the second phase of the implementation. Commonly available computer software such as spreadsheet, search engine, and word processor were also embedded into tasks to enable learners to reach and gather the target information needed to complete the tasks. Additionally, pen and paper materials were used depending on the task.

**Data collection and scoring**

Before data collection, ethics approval was secured from the Ethics Committee for Master and PhD Theses in the Social Sciences and Humanities at Boğaziçi University, as documented in the approval decision number SBB-EAK 2017-48. In this study, all the rules were observed as recommended in the "Scientific Research and Publication Ethics Directive for Higher Education

Institutions." None of the ""Actions Contrary to Scientific Research and Publication Ethics" were performed, which are specified in the second part of the Directive.

The pre and post-test developed to assess language learning consisted of five sections: grammar, vocabulary, reading, and writing skills. There were 10 vocabulary items, each worth 2 points, selected from the common vocabulary covered in both the experimental and control groups. The comprehension questions in the reading section was worth three points each (one point for spelling, content, and grammar), total of 15 points. There were two writing tasks. The scoring of the first task, worth 10 points, was based on content, spelling, grammar, and coherence. The second task contained a picture and five related questions, each worth three points, a total of 15 points. The grammar section consisted of 10 multiple choice questions, each worth one point. The overall maximum score was 70. The test questions were checked by a teacher of EFL for face validity, and minor revisions were made based on the feedback received. The alpha coefficient calculated from the test scores was .80, indicating that the test results can be considered reliable for this sample.

The blog entries, which comprised the writing tasks, were evaluated according to a rubric adapted from Brown (2007) for content, accuracy, vocabulary, and spelling, with a maximum score of 20. Each group member's participation was ensured by assigning each part of the task, such as completing a simple sentence or the name of an endangered animal. To ensure the reliability of the scores, the blog entries and the writing subtest were scored by an independent rater, who was also an English teacher. The agreement between the two scorings was .98. The video recordings were scored using a speaking activity rubric prepared by Toth (2010), with a maximum score of 16.

In addition, the answer sheets for the tasks during the station rotation sessions were collected, including the responses for the interactive questions in the e-books. The students wrote down in their worksheets the reponses to the fill-in-the-blank, matching, or multiple-choice questions integrated in the e-books they read on the computer. Each correct response was worth 1 point. The total number of correct answers was turned into a percentage, and compared to determine a success rate in this phase.

Finally, student feedback was collected three times during the implementation, at the end of the station rotation sessions, the blog writing activiy, and the final, oral presentation session. The students were asked 3 open ended questions about the problems they faced, aspects they enjoyed, and what they learned. The feedback questions and answers were in Turkish. The students' comments were then categorized based on the feedback question asked, and the frequency of each category was counted. Thematic analysis (Creamer, 2017) was used to analyse the students' responses to the open-ended questions.

**Data Analysis**

In order to analyze the quantitative data from the pre and post tests, an independent samples *t*-test was conducted to compare experimental and control groups. For student work during the stations, a frequency count was performed to provide descriptive statistics. Finally, student feedback was thematically analyzed (Braun & Clarke, 2006) to identify patterns in student comments about the implementation of the technology integrated TBLT.

## Findings

The test scores met the normality assumption, and an independent samples *t*-test was conducted to compare the mean scores from the pretest to determine whether or not the two groups were the same at the beginning of the study. No significant difference was found between the experimental group (M = 26.4, SD = 10.9) and the control group (M =28.3, SD = 11.9), $p = .599$ at pretest (see Table 1 for descriptive statistics).

Table 1
*Descriptive Statistics for Total Scores*

| | Group | n | Mean | SD | Std. Error Mean |
|---|---|---|---|---|---|
| Pre-Total | Experimental | 19 | 26.42 | 10.99 | 2.52 |
| | Control | 19 | 28.39 | 11.92 | 2.74 |
| Post-Total | Experimental | 19 | 51.95 | 6.31 | 1.45 |
| | Control | 19 | 35.34 | 11.93 | 2.74 |

The descriptive statistics for each subtest and *t*-values are given in Table 2. An independent samples *t*-test comparing the mean scores in the post test revealed a significant difference between the experimental (M= 51.94, SD= 6.30) and control groups (M= 35.34, SD= 11.92), $t(36)= 5.36$, $p<.001$. Paired samples t-tests showed that the students in the experimental group improved their test scores significantly in all the subtests; vocabulary, reading, and writing at the $p<.001$ level, and grammar at $p= .04$. The scores in the control group, on the other hand, showed a significant increase only in vocabulary, $t(18)= -3.12$, $p= .006$.

Table 2
*Descriptive Statistics for Subtests in Pre and Posttests (N=19 in Each Group)*

| Subtests | | Pre-test | | Post-test | | |
|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | *t* |
| Vocabulary | Experimental | 14.32 | 5.39 | 20.00 | .00 | -4.6* |
| | Control | 15.05 | 5.31 | 17.89 | 4.83 | -3.12*** |
| Reading | Experimental | 2.34 | 1.73 | 10.42 | 2.89 | -12.9* |
| | Control | 2.79 | 2.15 | 4.18 | 2.97 | -1.84 |
| Grammar | Experimental | 3.32 | 2.98 | 4.66 | 2.78 | -2.1** |
| | Control | 3.95 | 2.34 | 4.53 | 2.57 | -1.13 |
| Writing | Experimental | 6.44 | 3.80 | 16.86 | 3.36 | -9.85* |
| | Control | 6.60 | 5.63 | 8.74 | 7.04 | 1.37 |

*p< .001
**p< .05
***p< .01

**Student work at the stations**

The TBLT group's scores from the e-books at the reading station in the first phase were also compared to see whether or not there was an improvement over time. As can be seen in Figure 1, there was an increase in the means of the total scores during this phase. The mean score increased from 47.4 % (n=19) in the first session, to 71.4% in the second, and 79.9% in the final session.

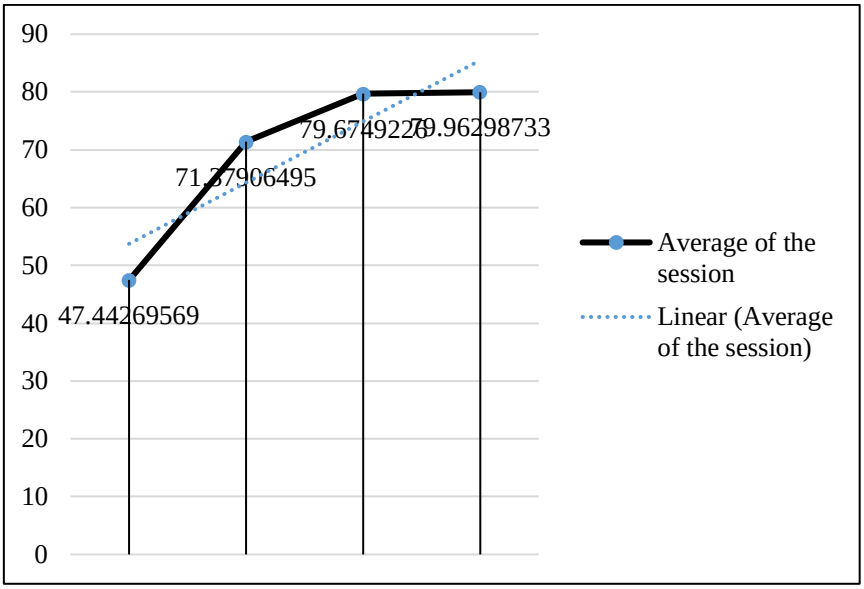


*Figure 1*. Means of the answers to questions in the e-books.

It can be seen from the individual students' scores that all students showed progress from the first two sessions to the last two sessions, ranging from 40% - 83% for the first and second sessions, and 83% - 98% for the third and fourth sessions (see Fig. 2).

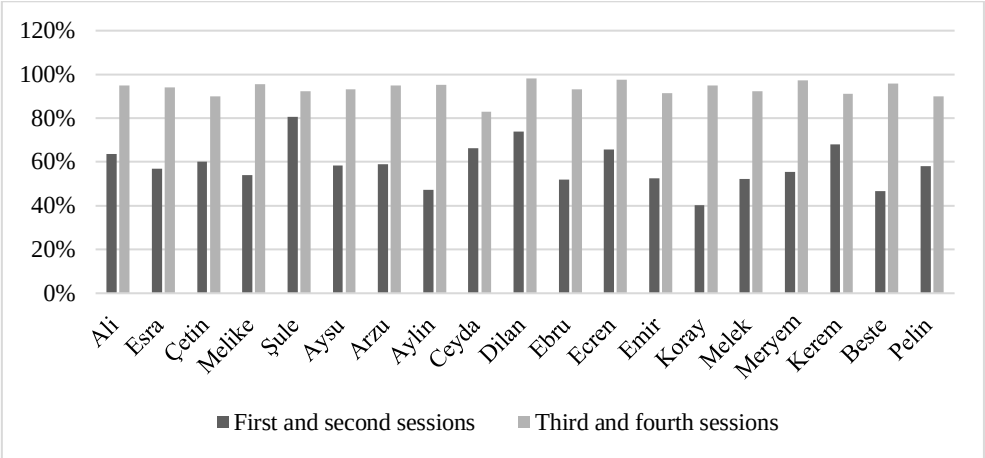


*Figure 2*. Comparison of the first two and last two sessions at the reading station (all names are pseudo names).

**Blog posts and speaking activity**

The scores from each blog entry were tallied and listed for each group in the TBLT condition. The groups increased their total scores by 1-4 points from the first to the third entry. The scores ranged from 13-14 in the first, and 14-18 in the third entry. The average score on the speaking activity was 13.2 out of 16. Five students scored 15 points, which was the highest in all the groups. The lowest was 11 points, scored by two students. The enthusiasm category outscored the other categories in the rubric while clear speech received the lowest points.

**Student feedback**

The feedback collected at three different times showed that the participants' views of the implementation were positive and they believed it helped them learn English. In the first round of feedback comments, 16 out of the 19 students said they had no problems during the station

rotations. One student reported difficulty with e-book reading and one with the vocabulary task. The most enjoyable aspect for 10 of the 19 participants was working on the computer, and working in groups. When their thoughts about the implementation were asked, 18 participants said "it was great" or "it was fun." Changing the tasks, the group members, and having only one student in each station were suggestions for improvement. Thirteen respondents said there was no need for change.

During the blog writing phase, 8 participants responded that they did not have any difficulty. Three said they had problems composing sentences, two had difficulty finding appropriate vocabulary, and two mentioned poor typing skills. One student referred to the difficulty of having to share a computer with 3 others. The students said that the most enjoyable aspect in this phase was publishing their own blog that could be read by others, working on the computer, and learning English and about endangered animals.

At the end of the final phase, the students were asked about what they learned. They reported vocabulary skills, information about endangered animals, and animal names they were confused about before. When asked to write down the new words they learned, 15 students listed several target vocabulary items. The students were also asked about the drawbacks of the implementation in general. Nine participants reported none, while two participants referred to the difficulty of working in groups. The rest mentioned spelling of certain words, writing the blog posts on paper, and moving around the stations.

## Discussion

This study sought to evaluate a teacher's experimentation with technology enhanced scaffolding design in TBLT by examining the difference in language gains, and the students' assessment of the implementation. The findings were encouraging, as the TBLT group significantly outperformed the control in the posttest, although both groups progressed over the duration of the study.

These findings confirm previous research in technology enhanced/mediated TBLT implicating proper use of the affordances of technology to create a meaning-focused language classroom, with repetition of target structures, and addressing learner needs and interests. The collaborative writing activity and station work in this study were welcomed by the students despite its difficulties in implementation, because these helped create meaningful contexts for language production.

The large increase in the learners' total scores in the TBLT group went beyond the expectations of the teacher/researcher. The TBLT group improved their scores significantly in all subtests, while the control group showed a significant improvement only in vocabulary. This was an encouraging finding in that technology enhanced TBLT helped improve 5$^{th}$ graders' language learning. The improvement in grammar is particularly noteworthy since there was no explicit grammar instruction in the experimental group. Although the control group received explicit instruction in grammar, they did not increase their scores significantly at posttest.

Designing instruction based on scaffolding software guidelines (Quintana et al., 2004) and appropriate technology integration (Lozano & Izquierdo, 2019; Sharma & Hannafin, 2007) seem to have contributed to the positive findings. Station rotation with various activities on different language skills centered upon the same theme may have helped this group of learners to see the content from different perspectives, with opportunities for multiple types of practice, linking previous knowledge to the newly introduced material (Reiser, 2004). Embedding visuals, definitions, and other scaffolds in the e-books, and user-controlled interface may also have helped language learning (Candlin, 2009; Ellis, 2017; Willis & Willis, 2007).

The sharp increase in the scores of the e-book exercises at the beginning and end of the station rotation phase can be partially attributed to a novelty effect. It could be inferred that the students were familiarizing themselves with the interface at first, and later gained better control of time and group work, which may have been instrumental in getting higher scores at the end of the first phase. The interdependence in group work and bringing different skills together in the same lesson may also have helped (Richards & Rodgers, 2014; Storch & Wigglesworth, 2007).

One of the main aspects of the instructional design in the TBLT group was having a major goal. It seems that for this group of learners, searching for relevant information online and collaboratively completing a task, a simple blog entry, may have provided a context for meaningful interaction. Although the participants had no previous experience writing in a foreign language, the process of collaboratively constructing simple sentences in their blog supplied a reason for making an effort to produce a final output, even if it were a short sentence, and production came with much scaffolding. As one student commented, "I liked the idea that other people could read our writing". Such contextualization and goal-orientation is recommended widely in the literature on TBLT (Ellis et al. 2020, Norris et al. 2009; Nunan, 2004).

Based on the findings, accuracy in writing was the most difficult to achieve for this group of learners, receiving the lowest points in the evaluation rubric. However, providing pre-activities in each session seems to have helped the development of content and vocabulary knowledge in preparation for the main task, as suggested in the literature (Chen, 2019; Ellis et al. 2020; Gibbons, 2014). Nonetheless, it may be inferred from the increase in 4 of the 5 groups' blog entry scores that the students started using the skills they were gaining. In addition, gaining background knowledge as the groups kept working on their blogs might also have contributed to the increase in the coherence of the later entries.

Finally, the findings from the experimental group's feedback pointing to little difficulty during the implementation seems compatible with Solares (2014)'s argument that learners tend to be less anxious about making mistakes in technology integrated activities, and can be more motivated for completing the tasks (Park, 2010; Pinter 2019). This might also be due to the fact that it was the first time the students participated in such a technology based language class, being at a school with no computer or Internet access. The advantages of group work (Chappell, 2014; Storch & Wigglesworth, 2007) were evident in the students' comments on how group members solved problems. As one participant put it, "we overcame the difficulties we encountered together".

## Implications and Conclusion

In this section, implications for instructional design will be discussed based on the findings of the study. Several guidelines will be recommended for digital scaffolding for younger learners of EFL in a limited technology context, and amendments will be suggested to Quintana et al (2004)'s guidelines for scaffolding software. Finally, the limitations of the study will be discussed.

### Amendments to guidelines for scaffolding software

Based on the findings of the study, the scaffolding provided for EFL learning must be relevant for the learners' needs and features of the task. Providing prompts even for simple tasks seem necessary at the lowest proficiency levels, but it is essential to balance the scaffolds so that the task does not become too easy. Ongoing feedback from the students is also important for how much scaffolding is necessary. Learners seem to monitor their learning and provide valuable design feedback, even if young, as was seen in the comments of the fifth graders in this study.

Several amendments are proposed from the perspective of teaching EFL to Quintana et al. (2004)'s scaffolding design guidelines for science inquiry software in Table 3 below. However, these recommendations and amendments should be treated with caution, since they are based on findings from a small group of learners. They can be considered as suggestions for instructional

designers and teachers who are interested in technology enhanced/mediated TBLT, and will work with younger students with limited language proficiency and technology skills.

Table 3
*Amendments to Quintana et al (2004)'s Scaffolding Software Design Guidelines*

| Guideline (Quintana et al, 2004) | Strategy (Quintana et al, 2004) | Amendment suggested for language teaching |
|---|---|---|
| Sense making<br>Guideline 1: Use representations and language that bridge learners' understanding | 1A. Provide visual conceptual organizers to give access to functionality | 1a Provide visual organizers to give access to language functionality |
| | 1B: Use descriptions of complex concepts that build on learners' intuitive ideas | 1b. Use descriptions of new vocabulary that build on learners' prior knowledge (including L1) |
| Guideline 3: Use representations that learners can inspect in different ways to reveal important properties of underlying data | 3A: Provide representations that can be inspected to reveal underlying properties of data | 3a. Provide representations that can be inspected to reveal underlying properties of language |
| | 3B: Enable learners to inspect multiple views of the same object or data | 3b. Enable learners to inspect the same language form in related contexts |
| Process management<br>Guideline 4: Provide structure for complex tasks and functionality | 4A: Restrict a complex task by setting useful boundaries for learners | 4a. Restrict tasks by offering prompts at the lowest levels of language proficiency |
| | 4B: Describe complex tasks by using ordered and unordered task decompositions | 4b. Provide an ordered list of tasks for an activity addressing a specific language skill |
| | 4C: Constrain the space of activities by using functional modes | 4c. Provide varied levels of scaffolding--several modes with more or less scaffolding for the same task |
| Articulation and reflection<br>Guideline 7: Facilitate ongoing articulation and reflection during the investigation | 7A: Provide reminders and guidance to facilitate productive planning | - |
| | 7B: Provide reminders and guidance to facilitate productive monitoring | - |
| | 7C: Provide reminders and guidance to facilitate articulation during sense-making | - |

The amendments to strategy 1a and 1b suggest the use of visuals whether conceptual or not, and prior knowledge and L1 to bridge learner's understanding. Designing pre-tasks to activate prior knowledge, and planning classroom work in stations can also be recommended. For guideline 3, the software can provide multiple language input in multiple but related themes (e.g., animals in the zoo, in the street, and endangered animalsfor the *animals* theme, as was the case in this study) and the target language forms can be highlightedfor inspection.

In amendments to strategies 4a, 4b, and 4c, the software can provide simple scaffolds so that task accomplishment is facilitated also at the lowest levels of proficiency. A to-do list can be provided as part of collaborative writing tasks (e.g., read, research, discuss, compose) such as the one in

this study. The students may choose to have fewer or more prompts to compose text and select the appropriate mode, based on the degree of scaffolding they need. Guideline 7 stressing articulation and reflection was implemented as in the original framework, and does not seem to require amendment for the EFL context.

As for the limitations of the study, a major problem was the lack of technological infrastructure. The school had no computer lab, computers, or internet connection. Therefore, the first author supplied 6 laptops, Internet access, and other necessary components for each session. Having to share a computer caused difficulty during group work. This obstacle was resolved by having the learners take turns in each task.

A limitation for research was the small number of participants. The arrangement of the classes allowed only a limited number of students to participate in the study, and the groups were intact, based on the school's arrangement. Therefore, the findings of this study should be read with caution. That the teacher was one of the researchers caused a threat of experimenter bias. This was dealt with by making sure that the control group received the same language content as the experimental group, and that the tests included only the common vocabulary and structure covered in both groups.

The learning activities needed to be adjusted to the restrictions imposed by the national curriculum, which had an impact on the pacing of the scaffolds. Had it been possible to increase the duration of the study, the number of tasks and activities could have been increased and the pacing of the scaffolds could be improved. There was only one speaking activity, due to the participants' limited language proficiency, because more time was needed for them to feel ready, as speaking was the most stressful skill for them.

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**Ethical Committee Approval**

This study was carried out in accordance with the rules of ethical conduct in research and publication, as specified in the approval document dated 21.06.2017 and numbered SBB-EAK 2017-48 by the Ethics Committee for Master and PhD Theses in the Social Sciences and Humanities at Boğaziçi University

**Conflict of Interest**

The authors declared no conflict of interest within the scope of this study.

## Uzun Öz

### Giriş

Teknolojinin sağladığı olanaklardan uygun şekilde yararlanan iyi tasarlanmış bir görev temelli öğrenme ortamı, amaca yönelik dil çıktıları için birçok fırsat sunabilir. Son yirmi yılda geniş çapta çalışılmış olmasına rağmen (Ellis, 2017), teknolojiyle bütünleştirilmiş Görev Temelli Dil Öğretimi (TBLT) çoğunlukla üniversite düzeyindeki öğrencileri içermekteydi (Chen 2019, Oskoz & Elola, 2014; Solares, 2014). Oysa Görev Temelli Dil Öğretiminin daha küçük yaşlarda ve başlangıç düzeyi öğrencileri için tasarlanan öğrenme ortamlarında da benimsenebileceği ortaya konmuştur (Ellis vd., 2020; Lambert ve Kormos, 2014). Bu çalışma, Quintana ve diğerleri (2004) tarafından önerilen dijital destekleme çerçevesinde 5. sınıfta öğrenim gören başlangıç düzeyi öğrencileri için tasarlanmış, istasyon rotasyon modeli ile uygulamaya konmuş, böylece TBLT etkinliklerinde teknolojinin olanakları işe koşulmuştur.

Çalışmada benimsenen öğretim tasarımının kuramsal temelleri yabancı dil öğretiminde TBLT'ye dayanırken teknoloji bileşeninde ise Quintana ve diğerleri (2004) tarafından geliştirilen öğrenme yazılımı tasarım çerçevesinden yararlanılmıştır. Quintana ve diğerlerine göre önerilen çerçevede önemli yere sahip olan anlamlandırma süreci, öğrencilerin hipotez oluşturdukları, karşılaştırma, gözlem ve analiz yaparak sonuçlara vardıkları bir süreçtir. Yazılım, tasarımında barındırdığı destekleme sayesinde bu süreç boyunca herhangi bir zorlukla karşılaşan öğrencilerin gerekli özellikleri ortaya çıkarabilmek için inceleyebilecekleri alternatif dil ve temsil destekleri sunarak yardımcı olur. Bu sayede, kavramların açıklamaları sağlanır ve görsel düzenleyiciler, öğrencinin zaten bildiği konularla bağlantılar oluşturur. Süreç yönetimi ise planlama ve karar verme anlamına gelir. Yazılım, öğrencilerin sonraki adımları belirlemelerine yardımcı olacak destekler sunar ve gerektiğinde bunları otomatikleştirerek bazı görevleri gerçekleştirmenin yükünü hafifleterek öğrencilerin daha ileri düzey becerilere odaklanmalarını sağlar. Son olarak, sunulan yazılımsal destekler öğrenileni ifade etme ve yansıtma sürecine yardımcı olmalı, sonuca varma ve çıkarımlar yapma sürecinde gerekli desteği sunmalıdır. Öğrenciler fikirlerini açıklamakta ve sonuca varmakta zorlandıklarında yazılım bileşenleri bu süreci kolaylaştırır (Quintana vd., 2004; Reiser, 2004).

Bu çalışmada kısıtlı teknoloji bağlamında düşük sosyoekonomik geçmişe sahip beşinci sınıf öğrencileri için anlamlı bir EFL öğrenme ortamı sunulmaktadır. TBLT alanındaki araştırmaların çoğunlukla görev öncesi ve ana görev aşamalarına odaklandığını ve takip görevlerine çok az dikkat edildiğini göstermiştir (Ellis, 2017). Çalışmaların çoğundan farklı olarak, bu çalışmada bütün bir teknolojiye dayalı TBLT uygulaması değerlendirilmiştir.

### Yöntem

Araştırma, ilk yazarın İngilizce öğretmeni olarak görev yaptığı İstanbul'daki bir devlet okulunda sunulan okul sonrası İngilizce programı kapsamında yürütülmüştür. Okul yönetiminin belirlediği iki sınıf seçkisiz olarak uygulama ve kontrol (Creswell, 2012) grupları olarak seçilmiştir. Katılımcılar, her grupta 19 öğrenci olmak üzere toplam 38 beşinci sınıf öğrencisidir.

Beşinci sınıf MEB müfredatında yer alan bir ünitede belirlenerek ünitenin işlediği dilbilgisi yapıları ve kelime dağarcığına yönelik teknolojiye dayalı işbirlikli TBLT etkinlikleri ve etkileşimli e-kitaplar geliştirilmiştir. E-kitaplar, Articulate Storyline kullanılarak geliştirilen e-kitaplar hedef kelime dağarcığı ve dilbilgisi yapılarını fark etmek için fırsatlar sağlamaktadır. Tasarım, Quintana ve diğerlerinin (2004) dijital destekleme ilkelerine dayandırılmıştır. Dil

öğrenimini değerlendirmek için dil bilgisi, kelime bilgisi, okuma ve yazma becerilerini ölçen beş alt bölümden oluşan bir test hazırlanmıştır.

Uygulama iki aşamada gerçekleştirilmiştir. İlk dört oturum görev temelli dil öğretiminde önem arz eden hazırlık aşamasını oluşturmuştur ve teknoloji entegrasyonunda harmanlanmış öğrenme yaklaşımı benimsenerek istasyon rotasyon modeli kullanılarak (Horn ve Staker, 2014) gerçekleştirilmiştir. Modelde, okuma, yazma, kelime bilgisi, dil bilgisi ve dinleme istasyonları olmak üzere her biri bir beceriye odaklanan beş istasyon vardır. Her istasyonda yapılması gereken görevleri tanımlayan özel talimatlar bulunmaktadır. Öğrenciler istasyonları dört kişilik gruplar halinde ziyaret etmişlerdir. Okuma istasyonunda öğrenciler, öğretmenin getirdiği dört dizüstü bilgisayarda interaktif e-kitapları bireysel olarak okumuşlardır.

İkinci aşamayı oluşturan sonraki beş oturum görev temelli dil öğretimindeki ana ve takip görevlerini içermektedir. Gerçek bir iletişim görevi olarak tasarlanmış olan ana görev, İngilizce bilgisi kısıtlı olan okuyucular için nesli tükenmekte olan hayvanlar hakkında bilgilendirici bir blog hazırlamaktı. Görevin gerekçesi öğrencilerle ayrıntılı olarak tartışılmış ve bu çalışmanın şöyle bir ihtiyaca cevap niteliği taşıdığı öğrenciler tarafından benimsenmiştir: "nesli tükenmekte olan hayvanlarla ilgili güvenilir web kaynaklarının çoğu İngilizce'dir, oysa İngilizceyi herkes rahatça okuyup anlayamaz. İngilizce bilgisi kısıtlı olan kişiler bu web kaynaklarından faydalanamaz". Öğrenciler kendileri de başlangıç düzeyinde oldukları için İngilizceyi yeni öğrenenleri hedefleyen, basit cümle yapısı ve kısıtlı kelime dağarcığı kullanan blog hazırlayarak İngilizce bilgisi kısıtlı olan kişilere faydalı olabilirlerdi. Bu çalışmada öğrenciler dört kişilik gruplar halinde çalışmış, her birinin kısıtlı yabancı dil bilgilerini işe koşarak ortak çalışmaya katkıda bulunabilmesi için soru-cevap, cümle tamamlama gibi desteklemeler sağlanmıştır. Çalışması sonucunda, gruplar Blogger.com aracılığıyla ortaklaşa hazırladıkları toplam beş blog yayınlamışlardır.

Eş zamanlı olarak aynı öğretmenle çalışan kontrol grubunda teknolojiye dayalı TBLT grubunda olduğu gibi aynı ünitenin öğrenme hedeflerine ve aynı hedef dilbilgisi yapılarına odaklanılmıştır. Öğretim daha çok biçim odaklı denebilecek ve Solares'in (2014) çalışmasında olduğu gibi ders kitabına dayalı düzenli sınıf etkinlikleriyle açık dil bilgisi öğretimini içermiştir. Uygulama grubunda kullanılan materyaller ve etkinlikler, çalışma sonrasında kontrol grubunun erişimine de açılmıştır.

Yapılan uygulamanın etkililiğini ölçmek için veri toplama aracı olarak araştırmacı-öğretmen tarafından hazırlanan ve çalışmanın başında ve sonunda tekrarlanan test soruları kullanılmıştır. Testin alfa katsayısı araştırmanın verileriyle 0,80 olarak hesaplanmıştır. Deney grubundaki öğrencilerin istasyon görevleri de istatistiki analizi desteklemek için kullanılmıştır. Bunun yanı sıra deney grubundan periodik olarak yazılı geribildirim toplanmıştır. Çalışmanın başında ve sonunda uygulanan test aracılığıyla toplanan nicel veriler bağımsız örneklem *t*-testi ile analiz edilmiştir. Öğrencilerin istasyon görevleri için betimleyici istatistikler sağlanmıştır. Uygulamaya dair öğrenci yorumları ise tanımlayıcı analiz ile incelenmiştir.

**Bulgular ve Tartışma**

Bağımsız örneklem *t*-testinin sonucunda uygulama grubu (M=51,94, SD=6,30) ve kontrol grubu (M=35,34, SD=11,92) arasında anlamlı bir fark ortaya çıkmıştır ($t(36)=5,36$, $p <0,001$). Eşleştirilmiş örneklem t testleri, deney grubundaki öğrencilerin tüm alt testlerdeki puanlarını önemli ölçüde iyileştirdiğini göstermiştir. Kelime bilgisi, okuma ve yazma alt testleri $p<0,001$

düzeyinde, dil bilgisi p= 0,04 düzeyinde anlamlı sonuç vermiştir. Kontrol grubundaki puanlar ise sadece kelime dağarcığında anlamlı bir artış göstermiştir (t(18)= -3,12, p=0,006).

Uygulama grubunun okuma istasyonundaki e-kitapların içindeki sorulardan aldıkları puanlar zaman içinde bir iyileşme olup olmadığını görmek için birbiriyle karşılaştırılmıştır. Ortalama puanlarda ilk oturumda %47,4'ten (n=19) ikinci oturumda %71,4'e, son oturumda ise %79,9'a yükseldiği gözlenmiştir.. Uygulama grubunda yer alan dörder kişilik grupların blog girişlerinden aldıkları puanlar toplanmıştır. Grupların ilk blog girişinden üçüncü blog girişine kadar toplam puanlarını 1-4 puan arttırdığı gözlendi. Puanlar ilk blog girişi için 13-14 ve üçüncüsü için 14-18 arasında değişmektedir. Ünitenin sonunda konuşma becerisine yönelik sunum etkinliğindeki ortalama puan ise 16 üzerinden 13,2 olarak tespit edilmiştir.

Öğrencilerden süreç boyunca üç kez toplanan geri bildirimler, katılımcıların uygulamaya ilişkin görüşlerinin olumlu olduğunu ve İngilizce öğrenmelerine yardımcı olduğuna inandıklarını göstermiştir. Geri bildirim yorumlarının ilk turunda 19 öğrenciden 16'sı istasyon rotasyonlarında sorun yaşamadıklarını söylemiş; bir öğrenci e-kitap okumada zorluk yaşadığını ve diğer bir öğrenci de kelime dağarcığı görevinde zorluk yaşadığını bildirmiştir. 19 katılımcıdan 10'u çalışmanın en keyifli yönünün bilgisayar başında ve gruplar halinde çalışmak olduğunu belirtmiştir. Uygulama ile ilgili düşünceleri sorulduğunda ise 18 katılımcı "harikaydı" veya "eğlenceliydi" şeklinde yanıt vermiştir. İyileştirme tavsiyeleri olarak bazı görevlerin veya grupların değiştirilmesini ve her istasyonda sadece bir öğrencinin bulunmasını önerilmiş, 13 katılımcı ise değişikliğe gerek olmadığını ifade etmiştir.

Araştırmanın bulguları teknolojiye dayalı görev temelli dil öğretiminde hedef yapıların tekrarını içeren, öğrencilerin ihtiyaç ve ilgilerine hitap eden, anlam ve iletişim odaklı bir öğretim tasarımında teknolojinin sağladığı olanakların doğru kullanımını hedefleyen önceki araştırmaları doğrulamaktadır. Uygulama grubundaki öğrencilerin toplam puanlarındaki anlamlı artış, öğretmenin beklentilerinin ötesine geçmiş, teknolojiyle geliştirilmiş görev temelli öğrenme ortamının özellikle hedeflenmemiş olanlar da dahil olmak üzere tüm becerilerin geliştirilmesine yardımcı olduğu konusunda cesaretlendirici olmuştur. Uygulama grubunda doğrudan dil bilgisi öğretimi olmadığı halde dilbilgisi gelişime özellikle dikkat çekicidir. Kontrol grubu dilbilgisi konusunda doğrudan öğretim görmüş olmasına rağmen, son testte puanlarını önemli ölçüde artırmamıştır.

Kendi yazdıkları cümlelerin ilk kez çevrimiçi olarak herkes tarafından okunabilme ihtimalininöğrencilerin blog yazma görevlerini tamamlama motivasyonunu artırdığı gözlenmiştir. Katılımcıların daha önce yabancı dilde yazma deneyimi olmamasına rağmen, blog yazma süreci sayesinde, TBLT alan yazınında önerildiği gibi (Norris, Bygate, & Van den Branden, 2009; Nunan, 2004) nihai bir çıktı üretmek amacıyla kendilerini hedef dilde ifade etmek için çaba göstermişlerdir. Nitekim bir öğrencinin dediği gibi "başka insanların yazılarımızı okuyabilmesi fikri" yazmak için motivasyon kaynağı olabilmektedir

Ayrıca bulgular, teknoloji entegrasyonunda dijital destek iskelelerinin gerekliliğini doğrulamakta (Sharma ve Hannafin, 2007), dijital destekleme sağlayan öğretim tasarımının (Quintana ve diğerleri, 2004) dil öğretiminde de faydalı olabileceğini göstermektedir. Aynı temaya odaklanan farklı dil becerilerine yönelik çeşitli etkinliklerle istasyon rotasyonu, öğrencilerin içeriği farklı perspektiflerden görmelerine yardımcı olarak önceki bilgilerini yeni materyallerle ilişkilendirerek

birden fazla uygulama türü için fırsatlar sağlamıştır. E-kitaplarda görseller, kelime tanımları ve diğer dijital destekleme unsurları dahil eden, kullanıcı kontrolüne yeterli imkan sağlayan arayüz tasarımı dil öğrenmede biçim ve işlevi bütünleştirmeye de yardımcı olmuştur (Candlin, 2009; Ellis, 2017;Willis ve Willis, 2007). Grup çalışmasında karşılıklı işbirliği ve farklı becerilerin aynı derste bir araya getirilmesi, literatürde önerildiği gibi öğrenmeyi iyileştirmiş görünmektedir (Richards ve Rodgers, 2014; Storch ve Wigglesworth, 2007).

Öğrencilerin uygulama sırasında pek az zorluk yaşadıklarını bildirmeleri, Solares'in (2014) öğrencilerin teknolojiyle bütünleşik etkinliklerde hata yapma konusunda daha az endişeli olma eğiliminde oldukları ve görevleri tamamlamak için daha fazla motive olabilecekleri şeklindeki argümanıyla uyumlu görünmektedir. Bunun nedeni, öğrencilerin ilk kez böyle bir teknolojiye dayalı dil dersine katılmaları, bilgisayar ve internet erişimi olmayan bir okulda bulunmaları olabilir. Öğrencilerin grup üyelerinin problemleri nasıl çözdükleri konusundaki yorumları grup çalışmasının avantajlarını (Chappell, 2014; Storch & Wigglesworth, 2007) ortaya koyar niteliktedir. Bir katılımcının dediği gibi, "karşılaştığımız zorlukları birlikte aştık."

Çalışmanın bulgularına dayanarak Quintana ve diğerlerinin (2004) dijital destekleme sağlayan öğretim tasarımı ilkelerine kısıtlı teknoloji bağlamında dil öğrenme ortamları açısından bazı öneriler getirilmiştir. Sağlanan dijital destekleme, öğrencilerin ihtiyaçlarına ve görevin özelliklerine uygun olmalıdır. En düşük yeterlilik düzeylerindeki basit görevler için bile destek sağlamak gerekmektedir, ancak görevin çok kolay hale gelmemesi için destelemeyi dengelemek önemlidir. Bu çalışmadaki gibi işbirlikli yazma görevlerinin (örneğin okuma, araştırma, tartışma, oluşturma) bir parçası olarak yapılacaklar listesi sağlanabilir. Öğrenciler, ihtiyaç duydukları dijital desteklemenin derecesine bağlı olarak, metin oluşturmak ve uygun modu seçmek için daha az veya daha fazla destek talebinde bulunabilmelidir. Öğrencilerden gelen sürekli geri bildirimler, ne ölçüde desteklemenin gerekli olduğu konusunda karar vermek için gereklidir. Bu çalışmadaki 10-11 yaş aralığındaki katılımcıların yorumlarından da görüldüğü gibi, öğrencilerin yaşı ne kadar küçük olursa olsun kendi öğrenme süreçlerini izlemeleri ve öğretim tasarım açısından değerli geri bildirimi sağlamaları mümkündür.