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The effect of tablet use on students' success in English as a Foreign Language (EFL) grammar classroom

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Integration of tablets in teaching English as a Second or Foreign language has been popular in recent years. However, there is limited evidence to prove the effect of tablet use on the acquisition of specific language skills. This paper aims to investigate the impact of tablet use on students' mastery of grammar skills. In order to answer the research questions, an experimental pretest-posttest with a control group design was employed at a private university in Turkey. The pre-test scores of both groups were compared with their post-test scores, and the post-test scores of the groups were also analyzed to look into a possible significant difference. The results indicate that there is no significant difference between the grammar achievement scores of the students in both groups. The findings were also cross-checked by using the views of the instructor and students of the experimental group on tablet use in the classroom. The instructor emphasized the influence of tablet use in learner autonomy, digital distraction, and network connection. Students mainly indicated that tablets can be supplementary, but they should not replace basic course materials such as textbooks and workbooks. The study can help raise awareness of curriculum designers and decision-makers generally about the effect of tablet use in the language classroom.

Key words: Tablet, effect, English Foreign Language (EFL), grammar, success.

INTRODUCTION

Mobile learning is the recent trend within the scientific community. From a conceptual approach, it has been defined as "learner and device mobility and flexibility, usually involving a mobile device and flexible user access to content and communication" (Brand et al., 2010). El-Hussein and Cronje (2010) similarly defined mobile learning as "any type of learning that takes place in learning environments and spaces that take account of

the mobility of technology, mobility of learners, and mobility of learning" (p. 20). Definitions of mobile learning do not go further than its technologies and hardware. This is the reason why it is difficult to come up with a final definition for mobile learning since it is an ongoing evolving concept. The constantly deriving types of technologies are used in various ways in relation to any current or future problem in the teaching and learning

process (Guri-Rosenblit, 2005). For instance, various concepts like *mobile learning, m-learning, hypermedia-assisted learning, ubiquitous computing, mobile instruction technologies, handheld learning and e-learning* have been used in different studies in relation to a variety of functions and concepts (Alexander, 2004; Carver et al., 1999; Corbell and Valdes-Corbell, 2007; Dearnley et al., 2009; Guri-Rosenblit, 2005; El-Hussein and Cronje, 2010; Traxler, 2007; Vesisenaho et al., 2010; Zywno and Waalen, 2002).

Tablet use in learning and teaching

Mobile learning differs from other technologically driven approaches in that it is not limited to a specific location that provides Internet connection and power. It is the tool that unties the person from a specific location. Studies related to wireless mobile learning devices can be seen in different kinds of settings for various reasons. One of the latest mobile learning tools, the tablet, which is also referred to as tablet computer, is seen as a user-friendly device with multimedia functions, Wi-Fi / 3G/4G enabled network for easy connection, a touch screen that is easy to carry, and no built-in keyboard or mouse. Using tablets to improve learning conditions has become a crucial topic of interest not only for primary or secondary education but also for tertiary education. The convenience of tablets in terms of time and space as well as the possibility of having vast amounts of information that can be used in various ways has attracted the attention of the educational community. Roschelle (2003) states tablets have the potential to achieve large-scale impact on learning because of their portability, low-cost, and variety in communication features. Adoption of this type of learning (m-learning) has been experienced in formal classroom delivery in various universities (Schuck et al., 2017). Various learning approaches –from traditional to high-tech driven ones- have also made their way in language learning and teaching environments. Previous research on the use of tablets in HE has focused mostly on issues like attitudes, motivation or perceptions of different stakeholders leaving behind skills like reading, writing or grammar. Though, still in its infancy, because of the popularity of the tablet computer, it has been under examination for some time ranging from affordance of iPads (Churchill et al., 2012) or student perceptions of the benefits of tablet PCs to student learning (Van Oostveen et al., 2011).

Taken into consideration the interest in tablet use, it seems that tablets can have both negative and positive effects on learners and learning. A systematically reviewed research on the use of tablets in higher education (HE) done by Nguyen et al. (2015) shows that there is no correlation between the enhancement of students' learning experience and occurrence of better learning. Challenges in current research were also spotted, and a lack of longitudinal and substantial evaluations considering the use of tablets in HE was dwelt on. Empirical and theoretical findings about the benefits of using tablets in education reported by Dhir et al. (2013) indicate that although some studies motivate and have positive impact on students, others signal that the long-term impact can be negative. Basing his study on Malone and Lepper's taxonomy of intrinsic motivation, Ciampa (2014) checked for students' perceptions on motivational affordance of using mobile devices for learning. The study resulted in showing that mobile technologies can be used to increase learners' motivation. On the other hand, Falloon (2013), in his study on the use of tablets, argues that there is a "complex matrix of influencing factors" for young people using tablets. Thus, he challenged the notion of tablets being always motivating and asked stakeholders to take actions accordingly. Bluestein and Kim (2017), in their study that required using iPads in a skills class, stated that tablet had shortcomings in meeting the requirements of the course. Their expectations from the use of the tablet could not meet the anticipated results from class activities and coursework. Butcher (2016), after piloting tablets on 64 further education (FE) students and 10 instructors across four courses, concluded that tablets do not have only one impact, but a mixture of impacts ranging from feeling more organized to feeling frustrated. Tablets have been found to not have the power to change education/learning dramatically. It was concluded that "the tablets' clear benefits were not automatically transformative, and engagement was not uniform" (Butcher, 2016: 1). Though tablets are still used widely in the field of education, they cannot claim to be the best solutions to learning.

On the other hand, another study by Chen and Kessler (2013) focused on the attitudes of students who used tablets to informal language learning. Ten undergraduate students of English participated in the study. The findings of the study revealed that students had positive attitude toward effectiveness of tablets as a learning tool. Similarly, Kim and Frick (2011) claim that the use of tablets in classrooms has the potential to enhance learning.

Obviously, there is a dearth of research on the effects of tablet use to enhance grammar learning. Grammar is a good starting point that might determine a tertiary students' level of his/her language proficiency. Some scholars highlight that being able to master a language requires good grammar knowledge (Shuib et al., 2015; Zhang, 2009). Yet, making grammar interesting is not the easiest job. According to BaSaeed (2013), "the question is not whether grammar should be taught to students, but rather how it should be taught" (p. 21).

In their study, Li and Hegelheimer (2013) described the implementation and development of a web-based mobile

application called Grammar Clinic for an ESL writing class. Though it was not directly related to the acquisition of grammar, it was mainly used for grammar exercises done outside class. The results of the study show that there is a positive correlation between the students' performance in Grammar Clinic application and their post-test results on grammar.

When it comes to how and why tablets can support language learning in terms of grammar, Engen et al. (2014) reported that 3rd year graders level of awareness of spelling and grammar rules seemed to be enhanced by the use of tablets. Similarly, in his study on the effectiveness of computer-assisted language learning (CALL) on learning grammar, Pirasteh (2014) trained two groups of students on various grammar points and the results show that e-mails can be an effective tool to cover grammar points successfully. Although Pirasteh (2014) did not use tablets but computers, the results can be easily adapted to tablets.

To be able to claim tablet computers as a cure-all, much more investigation is needed to gain meaningful insights on its application for language learning and teaching. Therefore, this study is specifically based on a mixed-methods design with a true experimental design to reveal the effect of tablet use in grammar achievement, a questionnaire answered by the students in the experimental group, and a follow up interview with the instructor of the students trying to answer the following research questions:

1. Is there any effect of tablet use on grammar achievement?
a. Is there a significant difference between the pretest and the posttest grammar scores of the students in the experimental group?
b. Is there a significant difference between the pretest and the posttest grammar scores of the students in the control group?
c. Is there a significant difference between the posttest grammar scores of the students in the experimental group and the control group?
2. Is there a change in the instructors' attitudes towards tablet use in teaching?
3. What are the views of the instructor of the experimental group on tablet use in the teaching and learning process?
4. What are the views of the students in the experimental group on tablet use in the teaching and learning process?

METHODS

Research design

Multiple methods are useful for this research as they provide better opportunities to find answers to research questions and lead to better evaluations of findings (Tashakkori and Teddlie, 2003). For

this reason, a mixed-methods research design was used in this research as there is a need to support, enrich, and/or complement results through an alternative method (Creswell and Clark, 2011).

The quantitative data of the study are derived from a true experimental design. Two groups were randomly assigned from a pool of subjects; one of them was randomly named as control group, and the other one was also randomly named as experimental group (Creswell, 2012; LoBiondo-Wood et al., 2014). The dependent variable in the experimental design is the grammar success of the participants, and the independent variable is the educational tablet use for grammar teaching. The experimental group used tablets for regular classroom practice while the control group did not have any exposure to use of tablets in daily classroom practice for 16 weeks within the same course calendar and content. An attitude scale was also employed to reveal the instructors' attitudes towards tablet use in the classroom prior to and after the process. A Likert type questionnaire was also used to collect data on the opinions of the students in the experimental group in order to record how they feel about tablet use in the classroom, what they think or believe before and after they use tablets in the classroom (Dillman, 2007). Moreover, the qualitative data are collected by using Patton (1987)'s Standardized Open-ended Interviewing with the instructor of the experimental group looking into the instructor's perspective on tablet use in the classroom.

Participants

The experimental phase of the study was held with the participation of the students in English Foundation classes at a private university in Turkey. All the participants were selected by using convenience sampling method considering their convenient accessibility, ease to reach (Patton, 1987), and English levels in grammar subtest of the entrance test. Later, pretest and posttest data were collected from 56 students including 28 students for each group. The experimental group was randomly selected between these two groups.

Prior to the process, students' pretest results were examined in order to establish the equality of the groups. No significant difference was found between the groups' academic achievement in grammar (Z= -1.402, p= 0.161 > 0.05). The results indicate that the groups were basically equal.

Two instructors were also selected and assigned randomly to the groups among 35 volunteer instructors. These instructors have 6 years of experience in teaching at a higher education institute taught along the program. The instructor of the experimental group was familiar with using a tablet, but still was provided with a two-hour educational session of using the tablet and the learning management system on tablet by an IT employee. The instructor of the control group did not take any training or educational session. These instructors volunteered to respond to an attitude scale which was employed prior to and after the process.

The instructor of the experimental group also volunteered to do an interview on tablet use process at the end of the application.

The questionnaire was responded to by the students in the experimental group. Twelve randomly selected volunteer students participated in the piloting process of the questionnaire, and all the students (n=28) in the experimental group responded to the questionnaire voluntarily prior to and after the process.

Procedure

The students in the program start with an A2 level proficiency which is based on Common European Framework Reference. The general goal of the program is basically helping the students to

reach a level of independent user; in other words, B2 level referring to the objectives in the following:

Independent user can understand the main ideas of complex text on both concrete and abstract topics, including technical discussions in his/her field of specialization; can interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without strain for either party; can produce clear, detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options (Council of Europe, 2001).

Based on the objectives above, the expected behaviours from students in grammar are non-systematic errors or minor flaws in sentence structure and a high degree of grammar control without mistakes which lead to misunderstanding within a framework of a 16-week course calendar.

During the process, the experimental group used tablets in the learning environment, and the control group followed the same course calendar without tablets, but coursebook materials. The tablets used by the students in the experimental group were provided by the management. Each tablet was preprogrammed by the IT staff with the assistance of the instructors and the researchers and presented with Internet access, a keyboard, a number of applications such as a word processor, an English-English dictionary, e-book pack including the coursebook, workbook, supplementary activities provided by the publisher, a note pad, and a search engine, and a learning management system. The learning management system included services for the students such as course syllabus, course calendar, emailing platform, forum, instant messaging, quiz builder, homework, supplementary materials, and communication tools between the students and the instructor. By using tablets, the students in the experimental group had access to the course material outside the classroom as a tablet is simply available for "anytime, anywhere" learning (Geddes, 2004). Another use of tablets by the experimental group students was the forum and instant messaging. The students were able to receive immediate synchronous and asynchronous peer and instructor feedback continually by using the forum and instant messaging anytime and anywhere. The students were also able to reach the course syllabus, the course calendar, their homework, and supplementary materials whenever and wherever they want.

The students in the control group used hard copies of the course book, the workbook, and their notebooks. They were also able to use the services of the learning management system such as course syllabus, course calendar, emailing platform, forum, instant messaging, quizzes, homework, supplementary materials, and communication tools between the students and the instructor. However, they had to use the computers in the library in designated library hours or their own laptops outside the classroom.

The instructor teaching the experimental group students used the tablet as the main teaching tool. All the course materials were presented online or digitally by using a tablet in daily teaching practice. The instructor was able to do class presentations, activities, quizzes and homework, communicate, give feedback, check students' work, and make announcements by using the tablet. The instructor of the control group used hard copies of the course material such as course book, workbook, and worksheets. At the end of the 16-week period, the post-test data and the opinions of the students and instructors were collected.

Data collection

For the pretest and the posttest, a grammar achievement test including 50 items were employed. The test was specifically composed of four task types: completion of short conversations, cloze, error correction, and transformation. All the items were employed to measure the students' ability to comprehend and produce a text/conversation with a variety of grammatical structures, communicate with a high degree of accuracy, transform ideas with a high degree of accuracy, and detect errors which lead to misunderstanding. The internal consistency of the test was calculated as 0.82 (α= 0.82).

Furthermore, an attitude scale called Scale of Attitudes towards Tablet Use in Teaching, developed by Kayapinar et al. (2018) was employed to reveal the instructors' attitudes towards tablet use in the classroom prior to and after the process. Online survey software was employed to collect the responses of the instructors. The scale is in Likert format ranging from "Strongly Agree (4)" on one end to "Strongly Disagree (0)" on the other on a 5-point scale. The scale has three factors defined as teaching practices, student learning, and faculty development. These three factors comprise 71.848 of the total variance. Cronbach's Alpha (Crα) reliability of the scale is .88.

Standardized open-ended interviewing was also employed for the instrumentation of qualitative data in order to reveal the views of the instructor of the experimental group of students on tablet use in the teaching and learning process (Patton, 1987).

Finally, a questionnaire was devised to examine the attitudes of the students again prior to and after the process. The questionnaire was developed based on the Scale of Attitudes towards Tablet Use in Teaching, and it is basically an adapted version of it. It is specifically composed of twenty items including learning practice, study needs, motivation, and participation. In the development of the questionnaire, four experts were employed. They examined the items considering the face validity and the content validity. After consensus, the questionnaire was given to 12 students for piloting. Based on the responses and the feedback from the students, minor modifications and amendments were made. Later, three experts revised the items and edited them to prevent possible confusions and enhance the comprehension by the respondents. Finally, a 20-item questionnaire was ready for the application.

Data analysis

To analyze the quantitative data, SPSS 23 was employed. A Wilcoxon Signed-Ranks test, which is a non-parametric equivalent to the t-test for dependent samples, was employed for examining the difference between the pretest-posttest scores of the same students in the experimental group and the pretest-posttest scores of the same students in the control group, and, to examine the difference between the post-test scores of the students in the experimental group and control group. Mann-Whitney U test, which is a non-parametric equivalent to the t-test for independent samples, was employed. Additionally, the descriptive statistics were calculated. The significance level for all statistical analyses was taken as .05. The total scores obtained from the attitude scale were also compared to support the findings of the experimental study. The questionnaire total scores of the students were analyzed by using percentages and discussed accordingly.

To analyze the qualitative data, content analysis was used with an attempt to analyze the data collected and identify core consistencies and meanings (Patton, 1987). First, the interview results obtained from the interview with the instructor of the experimental group were analyzed through pattern recognition in order to make categories and themes (Boyatzis, 1998). The transcript was analyzed line by line and memos were written (Strauss and Corbin, 1998; Glesne, 1999). Categories or labels were reviewed and recurring themes, core consistencies and meanings were identified by using pattern codes (Miles and

Table 1. Descriptive statistics for the experimental group students' pretest and posttest grammar achievement scores.

Parameter	N	Mean	Std. Deviation	Minimum	Maximum
Pretest	28	14.6071	4.30355	0.00	20.00
Posttest	28	22.0893	4.12771	16.00	30.50

Table 2. Results for the experimental group students' pretest and posttest grammar achievement scores.

Parameter		N	Mean rank	Sum of ranks
	Negative ranks	0[a]	0.00	0.00
	Positive ranks	28[b]	14.60	408.80
Posttest – Pretest	Ties	0[c]		
	Total	28		

a Posttest < Pretest. B. Posttest > Pretest. C. Posttest = Pretest.

Table 3. Experimental group test statistics (b).

Parameter	Posttest – Pretest
Z	-4.625[a]
Asymp. Sig. (2-tailed)	0.000

[a]Based on negative ranks.
[b]Wilcoxon Signed Ranks Test.

Huberman, 1994; Patton, 2002).

RESULTS AND DISCUSSION

The results are given for each research question in the following:

"Is there any effect of tablet use in grammar achievement?"

The answer to this research question is discussed by using the sub-questions:

"Is there a significant difference between the pretest and the posttest grammar scores of the students in the experimental group?"

The descriptive statistics for the experimental group students' grammar achievement scores are given before the results of the Wilcoxon Signed-Ranks test to be analyzed clearly (Table 1).

The results of the Wilcoxon Signed-Ranks test to reveal a possible difference between the pre-test and the post-test grammar scores of the students in the experimental group using educational tablets are presented in Table 2.

The ranks table provides some data on the comparison of experimental group students' pretest and posttest scores. The table's legend shows that all the students in the group had a higher score after the process as seen in positive ranks. To examine the possible difference between the two sets of scores made before and after the process, the test statistics were calculated as follows (Table 3).

By examining the test statistics table, the changes, due to educational tablet use in the classroom, led overall to a statistically significant difference in achievement sores. Therefore, a Wilcoxon signed-rank test showed that a 16-week tablet use in the grammar class elicited a statistically significant change in achievement scores (Z=-4.625, p= 0.000).

"Is there a significant difference between the pretest and the posttest grammar scores of the students in the control group?"

The descriptive statistics for the control group students' grammar achievement scores are given before the

Table 4. Descriptive statistics for the control group students' pretest and posttest grammar achievement scores.

Parameter	N	Mean	Std. Deviation	Minimum	Maximum
Pretest	28	13.6071	2.69037	7.00	18.25
Posttest	28	20.6250	3.00809	15.50	27.00

Table 5. Results for the control group students' pretest and posttest grammar achievement scores.

Parameter		N	Mean Rank	Sum of Ranks
Posttest – Pretest	Negative ranks	0[a]	0.00	0.00
	Positive ranks	28[b]	14.50	406.00
	Ties	0[c]		
	Total	28		

a Round 2 < Round 1.
b Round 2 > Round 1.
c Round 2 = Round 1.

Table 6. Control group test statistics (b).

Parameter	Posttest – Pretest
Z	-4.623[a]
Asymp. Sig. (2-tailed)	0.000
Based on negative ranks.	
Wilcoxon Signed Ranks Test	

results of the Wilcoxon Signed-Ranks test to be analyzed more clearly (Table 4).

The results of the Wilcoxon Signed-Rank test to reveal a possible difference between the pre-test and the post-test grammar scores of the students in the control group are presented in Table 5.

The ranks table provides some data on the comparison of control group students' pretest and posttest grammar achievement scores. The table's legend shows that all the students in the group had a higher score after the process as seen in positive ranks. To examine the possible difference between the two sets of scores made before and after the process, the test statistics were calculated in Table 6.

By examining the control group test statistics table, the changes, due to regular daily practice in the grammar class, led overall to a statistically significant difference in achievement sores. Therefore, a Wilcoxon signed-rank test showed that a 16-week practice without educational tablet use in the grammar class also elicited a statistically significant change in achievement scores (Z=-4.623, p= 0.000).

"Is there a significant difference between the posttest grammar scores of the students in the experimental group and the control group?"

The results of the Mann Whitney U test to reveal a possible difference between the post-test grammar scores of the students in the experimental group and the students in the control group are presented in Table 7.

The ranks table provides interesting data on the comparison of control and experimental group students' posttest grammar achievement scores. It indicates that most of the students in the experimental group can be considered as having higher scores after the process (Table 8).

By examining the final posttest statistics, it can be concluded that the scores of the students in the experimental group using educational tablets were not statistically significantly higher than the scores of the students in the control group (*U*=309, p=0.173). This might indicate that using tablets is not more effective than using coursebook materials, pen, and paper in the mastery of grammar skill although most of the students in the experimental group might have scored higher than the students in the control group.

"Is there a change in the instructors' attitudes towards tablet use in teaching?"

The answer to this question is given by the responses of the instructors to Scale of Attitudes towards Tablet Use in

Table 7. Posttest results for the experimental and control group students' grammar achievement scores.

Parameter		N	Mean rank	Sum of ranks
Posttest Exp.– Posttest Cont.	Tablet Use	28	31.46	881.00
	Regular Practice	28	25.54	715.00
	Total	56		

[a]Posttest Exp.< Posttest Cont.
[b]Posttest Exp.> Posttest Cont.
[c]Posttest Exp.= Posttest Cont.

Table 8. Posttest statistics (b).

Parameter	Posttest
Mann Whitney U	309.000
Wilcoxon	715.000
Z	-1.363
Asymp. Sig. (2-tailed)	0.173

a Based on negative ranks.
b Wilcoxon Signed Ranks Test.

Table 9. Instructors' attitude scale scores.

Parameter	Total		Subscale 1 Teaching practices		Subscale 2 Student learning		Subscale 3 Faculty development	
	S*1	S*2	S1	S2	S1	S2	S1	S2
Instructor-EG**	57	76	28	36	17	24	12	16
Instructor-CG**	62	55	32	28	17	15	13	12

*Session. **EG, Experimental Group; CG, control group.

Teaching. In Table 9, the results can be seen to describe the instructors' scores prior to and after the teaching process.

The results indicate that the instructor of the experimental group had a lower scale total than the instructor of the control group in the first session which is prior to the process. However, the instructor of the experimental group had a higher scale total in the second session at the end of the process. Considering the subscales, it can be easily seen that the scores of the instructor of the experimental group went higher whereas the scores of the instructor of the control group went lower. The instructor of the experimental group on tablet use in the grammar classroom developed a positive attitude during the application process whereas the instructor of the control group scored less in the second session at the end of the process.

"What are the views of the instructor of the experimental group on tablet use in the teaching and learning process?"

Standardized open-ended interviewing was employed for the instrumentation of the qualitative data in order to reveal the views of the instructor on tablet use in the teaching and learning process. It includes the same question –the same stimuli- in the same way determined in advance (Patton, 2002). The transcripts were analyzed line by line and memos were written (Strauss and Corbin, 1998; Glesne, 1999). Categories or labels were reviewed and recurring themes, core consistencies and meanings were identified by using pattern codes (Miles and Huberman, 1994; Patton, 2002). The themes were found as 1) learner autonomy 2) digital distraction, and 3) network connection.

Learner autonomy in this study can be defined as the "ability to take charge of one's own learning" (Holec, 1981). The instructor who used tablets in the classroom provided valuable comments on tablet use and learner autonomy as in the following:

Students used recommended resources to do their homework. There are many exercises online, which allow the students to practice different grammar items. These materials were also downloaded from the learning management system. Therefore, the tablets gave students instant access to individual research, making a tremendous knowledge base available. After posting links on the learning management system, the students accessed them in class. These online exercises immediately graded student answers and sometimes even gave extensive explanations for the grammar point in question. This gave the students more independence, as they did not have to rely only on the instructor's explanations. We did not need to check the answers all together; they would see the correct answers automatically, after doing the exercise. Tablets also made it easier for students to revise at home. Students loved and enjoyed this opportunity. Albeit requiring extra preparation time, it was possible to create tests or exercises on online platforms such as Kahoot. The students needed to access these exercises from a computer or a smartphone previously, and the tablets were excellent for that purpose.

As Xiangming and Song (2018) state, in the education field, the portable tools have ubiquitous nature, and they enable learners to access information and feedback regardless of time and location, and mobile learning tools makes possible the combined synchronous and asynchronous learning activities and enriched engagement for participants in multiple learning contexts. Supporting this idea, the instructor states a variety of exercises online allow the students to practice different grammar items, and, with the help of tablets, students feel less reliance on the instructor which gives them the feeling of independence. They can use it wherever they want and whenever they want. In addition, since explanations are provided by the system in the tablet, it helps them to take their own decision which is a component of learner autonomy. The ability to be able to revise at home without the use of books/notebooks became a positive reinforcement. The students had also the opportunity to test themselves online easily anytime and anywhere with the existence of tablets. These are small steps towards individualized learning and self-direction. The opportunity of infinite access to materials and synchronous feedback seem to increase the enthusiasm and confidence in the teaching and learning process. Students who enjoyed and loved the opportunity to use tablets during their grammar classes may also easily relocate these opportunities into other courses.

0In support of tablet use, the instructor reported that using tablets in class is helpful to quickly deliver engaging material to the students in real time in just a couple clicks. It seems that the instructor found tablets very useful for interactive controlled and autonomous practice. However, the instructor also noted that, because the book provided

for the Grammar module was in flat text and graphics format lacking structuring and interactive elements, the use of tablets was restricted in different ways. The instructor states:

If the grammar book provided had interactive features, it would be more engaging for the students. They could not do anything with pdf e-books except for highlighting and annotating. They could not write or do any tasks in the book. Another negative comment is that, often, tablets proved to be a cause for distraction; students would get quite distracted, and I had to repeat the instructions more. Although the students became quieter and calmer when they started using the devices, this was not necessarily good indicator, and it did not mean that that they were on task. It was only to be expected that it was more difficult to control what the students were doing. When they use books, if they are looking at the books, and the instructor can assume that they are reading or doing the task. But if they are looking at the tablets, they can be doing many different things. Therefore, I had to walk around much more when the students were using tablets or smartphones, to make sure students were really doing the exercises and not doing something else.

At this point, as the instructor states, a customized interactive version of the coursebook materials would be more useful in the process. It can increase motivation, engagement, and prevent distraction. When it comes to the second theme, digital distraction, within this context, it can be defined as "distraction due to electronic devices and media that breaks the concentration from the main piece of work that is being done (Agrawal et al., 2017). It is a well-known fact that nowadays students at every level are immersed in Information Communication Technology. These students, also called "Millennial Generation", have a vast amount of resources that help them with instant communication as well as a treasure of information. In spite of the benefits of these resources, they also can be distracting at some points. As the participant (instructor) has stated during the interview, students were distracted in two ways: lack of a powerful infrastructure and material. The lack of a powerful infrastructure affected the speed of the internet which seemed to be inefficient for the amount of tablets. When it comes to material, the participant stated that integrating technology into classes does not mean that it is used for its purpose. Students might be dealing with any other kind of stuff not related to the class at all. Use of tablets in classes made it more difficult for the instructor to control the whole class although the students were more silent and calmer than usual. Similarly, according to Montrieux et al. (2014) "instructors seem to have the fear of losing their class management by the introduction of tablet computers, as they think students are seduced to surf social network sites" (p. 485). As the instructor mentioned, "I had to walk around much more when the

students were using tablets or smartphones, to make sure students were really doing the exercises and not doing something else", the instructor and even students who use their mobile devices for academic purposes can be concerned about the potential distractions of these devices (Dahlstrom and Bichsel, 2014).

The most frequently encountered problem of the technical nature was the need of the network connection as the instructor reported:

…One of the reasons for disengagement was that not all tablets were equally fast and while some students were already on the required link or page, others were still trying to start their device or connect to the Internet. In class, several students asked if they could use their smartphones rather than tablets, in order to access the online exercises. Because their mobile devices were faster and less prone to a glitch, some students, time to time, preferred their mobile devices over tablets despite the fact that tablets have larger screens.

Without the network connection, the tablets become completely obsolete as all the exercises were online. This might indicate that any teaching environment using tablets should make sure that the Internet service is powerful and provided all the time of teaching and learning. Another technical disadvantage noted by the instructor was about the battery life of tablets. Because tablets run on batteries, and batteries tend to run out of charge at the least appropriate moment, the instructor reportedly experienced interruptions. A strong network connection accompanying tablets during the teaching and learning process seems to be needed without any network problems.

"What are the views of the students in the experimental group on tablet use in the teaching and learning process?"

The students in the experimental group were given a questionnaire on tablet use including twenty items which focus on study needs, learning practice, motivation and participation, and they were asked to respond based on their tablet use experience in the grammar classroom. The results of the questionnaire prior to and after the process are given in Table 10.

Before using tablets in the teaching and learning process, student responses had a tendency of using tablets in daily classroom practice with a percentage of 61.7. Most of the students (64.3%) in the experimental group stated that educational tablets would meet their study needs. Examining the results of the two sessions, it is apparent that more students (46%) thought they would be comfortable with using tablets in the classroom practice; however, the results of the second session-which is after using the tablets for daily practice- indicate

that only some students (29%) in the experimental group feel comfortable with using tablets in the classroom. Similarly, in the first session of the questionnaire, when some students (15%) mentioned that tablet use would be a challenge for them, after the process, more students thought the same as this percentage increased to 29%. The idea that tablet use makes multitasking easier did not change a lot after the process. Almost one half of the students agreed and/or strongly agreed in both sessions. The number of the students who thought that tablet use would be beneficial for the courses they study slightly increased from 32 to 36%. The number of the students who said "Tablets should be used only as a supplementary studying tool" also increased from 46 to 54%. This result was supported with the result of another item stating "Tablets should not replace other studying tools". The percentage of the responses to this item also showed an increase from 46 to 68%. In the first session, almost half of the students mentioned tablet use would add a lot to their study needs. There is a slight increase in this result from 46 to 50%. In addition, only some of the students mentioned in both sessions that tablet use would be helpful being a more creative and organized (25 to 29%; 36 to 25%) while there is a decrease in being organized in the second session. The number of the students who mentioned tablets would be useful for presenting their homework (43%). However, there is a high decrease in the number of students who state that tablets can be used to practice exercises (68 to 46%). Other interesting results are that the percentages did not change in the use of tablets as tablets provide functions that cannot be possible with textbooks (32% in both sessions), increase participation (29% in both sessions), and contribute to student learning (25% in both sessions). Still, there is a remarkable increase in the number of students stating the use of tablets increase motivation (25-to-36%). On the other hand, most of the students do not agree with the idea that tablets increase motivation in the entire teaching and learning process (64%).

Conclusions

As using tablets has increasingly become an integral part of people's lives, the increasing availability and use of tablets in daily life has led the way to the use of tablets for teaching and learning in all levels of education and higher education. Institutions have been trying to provide support, enhancements, and transformations by using tablets in order to improve the learning outcomes. However, there is a challenge in providing scientific evidence behind these attempts, especially tablet use in different contexts in higher education. This paves the way to this study, and this study specifically aims at revealing the effect of tablet use in grammar acquisition with an experimental design having supportive evidence from the

Table 10. Students' questionnaire results.

S/N	Item	S*1 Strongly agree /Agree%	S*2 Strongly agree /Agree %
1	I would be comfortable using a tablet for studying purposes	46	29
2	Tablet use would be a challenge for me when focusing on studying	15	29
3	A tablet would make me able to multitask easily	46	43
4	The courses I am studying would greatly benefit from the use of tablets	32	36
5	I would not feel comfortable with using a tablet in the classroom	39	43
6	Tablets should be used only as a supplementary studying tool	46	54
7	Tablets should not replace other studying tools	46	68
8	I do not think using tablets would add a lot to my studying needs	46	50
9	The courses I am studying would not benefit from the use of tablets	32	36
10	A tablet would contribute to my development being a more creative student	25	29
11	A tablet would contribute to my development being a more organized student	36	25
12	I would use a tablet for presenting my homework in the classroom	43	43
13	I would use a tablet for practicing the exercises in the classroom	68	46
14	A tablet would be a distraction in my studying practice	21	14
15	A tablet would contribute to organizing my studying material	32	21
16	A tablet would provide functions not possible with a textbook	32	32
17	A tablet would increase my interaction with the tutor in the classroom	29	32
18	A tablet would increase my participation in the classroom	29	29
19	A tablet would increase my motivation to learn the material	25	36
20	A tablet would contribute to my learning	25	25

S*, Session.

feedback of the instructor of the experimental group and students.

The statistical results basically revealed a significant difference between the pre-test and post-test grammar scores of the students in the experimental group and control group. Besides, the scores of the students in the experimental group using educational tablets were not statistically and significantly higher than the scores of the students in the control group at the end of the process. Considering the attitudes of the instructors towards tablet use, the instructor of the experimental group had a lower scale total than the instructor of the control group in the first session prior to the process. However, the instructor of the experimental group had a higher scale total in the second session at the end of the process. There are three themes found in the transcripts of the interview made with the instructor of the experimental group such as 1) learner autonomy 2) digital distraction, and 3) network connection. Tablet use enables the students to become more autonomous as they can access information and feedback with a variety of exercises online allowing the students to practice different grammar items. In this way, the students feel less reliance on the instructor which gives them the feeling of independence. Tablets can also prove to be a source of distraction. As

the instructor of the experimental group stated, students were distracted in two ways: lack of a powerful infrastructure and material, and a cautious plan of the use tablets in the classroom would be more useful. Technical specification of tablets is also a point to consider carefully. The operating system for the tablets, in particular, has to be wisely selected. While students may be familiar with one operating system, the institution may prefer another system for the sake of consistency. If tablets do not support multitasking, several files or windows might be a challenge to lesson integrity. Another point is that tablets run on batteries, and batteries tend to run out of charge at the least appropriate moment. The instructor also emphasized that tablets also became completely obsolete without network connection as all the exercises were online. This might indicate that any teaching environment using tablets should make sure that the Internet service is powerful. Students' responses to the questionnaire also indicated that most students (29%) in the experimental group did not feel comfortable with using tablets in the classroom at the end of the process although they thought they would be comfortable with using tablets in the classroom practice prior to the process. More than half of the students in the experimental group mentioned that tablets should be

used only as a supplementary studying tool and should not replace pother studying tools. Another interesting result at the end of the process was that most of the students did not agree with the idea that tablets would increase motivation in the entire teaching and learning process (64%).

The effect of tablet use in this study seems to hinge as much on the quality of the e-book or e-materials as other factors involved. In other words, the quality of the teaching resources used with the tablet directly plays an effective role in the effect of tablet use as an educational tool. Any institutional body that is looking into incorporating and adopting tablets as an educational tool for teaching grammar in the ELT classroom might need good interactive e-books that lend themselves to personalized usage. Clearly, a syllabus, based on interactive e-books or based on tablet-friendly online activities can be more convenient and motivating. In this study, one of the basic limitations was that the interaction was limited, and, most of the time, the students were demotivated when they could not write the answers as they were on task because the e-book was in flat text and graphics format, and it was not including structuring and interactive elements. Alternatively, developing a new syllabus which addresses the needs of the learners without having to rely on e-books would work better.

Despite the limitations, tablets offer new possibilities in the classroom. Using tablets in the grammar classroom helps instructors to quickly deliver engaging material to students in real time. Students use recommended online resources to do their homework. These materials can easily be downloaded from the learning management system. The tablets also allow students to instantly conduct individual research using the Internet, which is a tremendous knowledge base a few clicks away.

There are also some motivational factors for incorporating tablets into the classroom. It promotes independent learning and minimizes paperwork for the instructor. It may also be designed to offer personalized education opportunities and increase knowledge beyond books. When a tablet initiative is to be implemented, educational factors such as pedagogical and theoretical frameworks, accessibility of content, and instructor preparation and training seem to be of high significance. The initiative, without a focus on the hype around tablets, can be centered on the use to achieve the educational goals stipulated by the curriculum. In order to achieve these educational goals, instructors might need more time to prepare as preparing quality lessons and activities for tablets requires a lot of time and creativity. Still, it looks like an interesting and professionally enriching experience to try out new ways and methods of teaching as also mentioned by the instructor of the experimental group.

A simplistic approach to replace the tablet with the course book does not seem to work. To go along with the technological changes, a change in teaching approach could be more helpful. Instructors, planners and curriculum designers can look into ways of utilizing tablets in ways that have added value over traditional pen and paper style. As they begin to ponder different ways of capitalizing on the uses of tablets in the grammar classroom, they can start asking the students to use the tablets to access the Internet in order to research some topics or to access online interactive exercises. This added value is what is the most appreciated by students as evidenced by the positive responses on tablet use in the questionnaire.

For future research, another experimental study excluding the limitations mentioned can be employed by researchers. Similar experimental studies can also be employed for different fields of education and skills such as reading, writing, math, and science using or adopting new strategies or procedures with the use of tablets. Further research can also focus on different levels of education in different lengths of time with possible additions of testing strategies and learner attitudes. Some other variables can also be added in future studies such as motivation, gender, age, learning strategies, and multiple intelligence.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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