



## A Video Game-based Paragraph Writing Instruction vs. Teacher-based Writing Instruction: Examining L2 Learners' Perceptions through Dynamic Assessment

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### Abstract

Game-based learning and the use of Artificial Intelligence in education is a powerful way to enhance learning and provide content that has been underrated in the Iranian context. This study designed an educational video game under the name of *Lost p* to improve learners' writing ability based on a process based-approach within Dynamic Assessment context. Thus, the researcher employed experimental design and used the designed video game as a medium of instruction for the experimental group. The control group received a teacher-oriented method and both groups received feedback and corrections based on the Aljaafreh & Lantolf (1994) *self-regulatory* scale. The result of the study shows that the experimental group outperformed learners in the control class. We found that teaching paragraph writing rules, such as drafting, getting idea techniques, topic sentence development, and integrating them with the elements of the game were entertaining for the gamified group. To explore players' attitudes toward the game, a semi-structured interview was conducted that showed differences between gamified and non-gamified writing tasks in the post-test phase of the research since the experimental group's writing scores were enhanced in the second phase of the study. Moreover, this study suggests L2 learners and teachers can adapt game thinking and elements of games to their educational practice.

**Keywords:** Writing, Process-based Approach, Dynamic Assessment, Video game, Artificial Intelligence

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For a few decades, L2 research revealed that the English language has been adopted as an academic language across Europe and Canadian universities; both native speakers and non-native speakers perceived the difficulty level of English for academic purposes (Berman & Cheng, 2001). They need to be competent language skills specifically in higher education (Cumming, 1998; Ferris & Tagg, 1996; Graham, 1987; Sarudin, 1994; Zhao, 1993). Among all English language skills (i.e., speaking, reading, listening, and writing), undergraduate and graduate students found “writing” is a big problem (Belcher & Braine, 1995; Connor, 1996; Jordan, 1998; Kaplan, 1996; Kroll, 1990; Silva, 1993; Zamel, 1983). Carter (1995) stated that “writing” makes most learners unable to cope with literacy expectations due to cognitive load, high cultural and social aspect linguistics codes, discourse style, and low level of proficiency in the target language. However, developing language skills for *literacy* does not suffice.

With the advancement of modern information and communication technologies, including the Internet and Ed Tech enhanced learning contexts in teaching and learning processes (Khodabandeh & Tahririan, 2020), writing skills become learners’ great concern and the most commonly-used form of interaction as a *social relevance* (Klimova, 2012). Therefore, teachers are expected to employ different methods to scaffold learners in developing their composition ability.

Many scholars also see writing as the most difficult challenge faced by L2 learners due to its complex cognitive process and goals (e.g., Bilal et al., 2013; Deane et al., 2008; Flower & Hayes, 1981; Grabe & Kaplan, 1996; Nunan, 1989; O'Malley & Chamot, 1990). Notably, writing is a cognitively demanding process (Chakraverty & Gautum, 2000) that involves much time for thinking and reflecting on a specific topic. Moreover, two theoretical perspectives (cognitive and sociocultural) have greatly influenced the recent L2 writing research and pedagogy (Roca de Larios & Murphy, 2001 as cited in Rezazadeh & Tavakoli, 2014).

In the sociocultural perspective of language learning and teaching, the metaphor *scaffolding* was introduced as a promising technique, which is associated with the Soviet psychologist Lev Vygotsky (Gonulal & Loewen, 2018). In the sociocultural orientation, social activities such as collaborative problem-solving, sharing peer feedback, brainstorming, planning, and drafting, within a cycle of process writing are emphasized (Keh, 1990; Seow, 2002; Tsui, 1996; Zamel, 1983). To this end, Aljaafreh & Lantolf (1994, p. 468), developed a self-regulatory scale, consisting of 13 forms of mediatory moves, which is used for scaffolding adult ESL learners'

development of English tense, articles, prepositions, and modal verbs in their writing process.

Since a large body of information has proved that the ability to write well can have a profound impact on students' academic achievements (Alexander, 2008; Currier, 2008; Cohen & Upton 2007), for years this issue has been the main focus of many studies. On the other hand, for twenty years or so ago, writing is being used as a means of evaluation (Grabe & Kaplan, 1996), and students are constantly struggling to find a way to write arguably and give them a sense of achievement. Also, in most English classes as a second or foreign language, students face the problem of developing functional and natural language. Thus, a majority of them, due to their poor English competence, are more prone to memorization of written structures. The process-based approach to writing plays a crucial role in developing students' composition abilities. It engages learners' cognitive and metacognitive involvement in the writing process and stipulates a wide array of steps in their written expressions, motivation, topic selection, planning, drafting, goal setting, and brainstorming (Steele, 2004). Moreover, drawing on the process-based approach of writing, in order to promote learning, assess individual and group learning, and diagnose L2 potential problems simultaneously, dynamic assessment can help to embed intervention within the assessment and lead individuals to a higher level of functioning (Poehner, & Lantolf, 2004).

Increasingly over recent decades, researchers are exploring ways to improve writing abilities through technology (Grimes & Warschauer, 2010; Warschauer & Grimes, 2008; McNamara, Crossley, Roscoe, Allen, & Dai, 2015; Kopp, 2009). Yet, there is an insufficient body of research for integrating *Artificial Intelligence* into composition instruction, making the purpose and procedure of this process more visible and tractable. Also, the expected popularity of video games has continuously absorbed researchers to study their influence on language education (Bourgonjon et al., 2010). While several researchers (Chen & Yang, 2013; De Aguilera & Mendiz, 2003) have mentioned the high value of video games in education, a few studies have examined the influence of different types of video games on foreign language learning (Chen & Yang, 2013). Notably, in the educational setting, *Gamification* is one the educational approach that is of great importance in creating positive learning and motivation in the social context (Garland, 2015; Giang, 2013; Pytash & Ferdig, 2014) since the major problems of modern education are related to lack of motivation and engagement of students to participate actively in the learning process (Kiryakova, Angelova, & Yordanova, 2016; Glover, 2013). So instead of

using teachers' explicit feedback, the game is supposed to provide the most effective hint within the dynamic assessment procedure (ibid.).

### Self-regulatory Scale

To promote learning and assessment in L2 writing and within the scope of this study which uses a sociocultural perspective for its aims, Aljaafreh & Lantolf's (1994) self-regulatory scale was used. The scale offers gradual scaffolding and feedback which are needed to instruct and tailor emergent needs to help learners in the process of writing tasks. They reported significant development in learners' independent performance over "continuous *assessment*" which led them to autonomous performance moving toward self-regulation and correction. In fact, the self-regulatory scale is the basis for the instruction and assessment in the dynamic assessment (DA) procedure. Thus, the present study through the integration of game elements and game thinking takes into account learners' zone of proximal development (ZPD) to assess students' current abilities and promote learning and development.

### Previous studies

The literature on the use of video games for the teaching of L2 writing seems to be inadequate. Ashinoff (2014) investigated Japanese learners' listening skills achievement through a baseball video game. The use of online technology to work with language acquisition is considered a natural by-product of the changing face of the educational world. A shred of evidence has shown that students who conduct their learning online are better than students who work in traditional settings to learn a second language in terms of their levels of anxiety and their need for gap awareness in their language skills (Ban & Summers, 2010).

As Bridgeland et al. (2006) reported, motivation and engagement are significant challenges for the American educational system, which faces a shocking dropout rate each year. Thus, games that offer a selection of a task under free-choice conditions enhance learners' motivation to perform a task, and level up the gamers in an entertaining way. In this regard, Barata et al. (2013) examined gamified learning environments and proved that gamification can create a deeper engagement among students. Also, Roscoe et al. (2014) designed an intelligent tutoring system (ITS) within the context of Writing Pal (W-Pal) to support young students' persuasive writing and strategy development across multiple steps and parts of the writing process.

### The rationale of this study

The present study pursues to adopt an experimental gamification approach to investigate the effect of the game-based learning method and implementing AI on developing and detecting learners' writing ability. To this end, and within the self-regulatory scale of Aljaafreh and Lantolf (1994), the study seeks to integrate game elements into the educational environment by advocating dynamic assessment. So, within the DA context, the designed video game takes on the role of mediator to examine students' behavior, commitment, and motivation and lead to improvements in knowledge and skill. In the second phase of the study, an interview explored the Iranian attitude toward implementing the gamified writing task and the impact of gamification on learners' writing ability.

Recently researchers advocate using video games and AI in education and prove that platform games are considered very helpful in acquiring practical skills, relieving stress, simulating motivation, and developing psychomotor abilities and cognitive perceptions. Moreover, apart from the knowledge that a player can gain through different quests, it is possible to set educational goals that platform games can help to fulfill. So, by creating favorable conditions and puzzles games are able to engage students, generate detailed reports, and reward efforts for solving the problems. On the whole, it is believed that, through integrating a friendly competitive world of games with the formal condition of education within a dynamic assessment context, the study may achieve certain learning objectives and positive change in students' behaviors and attitudes.

### Research questions

This study examined the impact of a gamified-writing task on the Iranian EFL learners' writing skills, and compared the student's writing performance with their non-gamified writing tasks. In this regard, the following research questions were constructed:

**Q1.** Is there any statistically significant difference between the writing ability of Iranian EFL learners who are exposed to a gamified-writing task and a non-gamified writing task?

**Q2.** Is there any statistically significant difference in the frequency of the writing characteristics between the gamified-writing group and the non-gamified group?

**Q3.** What are the attitudes of the students about their experience and progress in the gamified group?

## Method

### Participants:

The participants of this study were EFL learners in two private institutions. After administrating the Oxford Placement Test to homogenize the target population based on their language proficiency for intended levels, fifty-three EFL learners were identified. Overall, 40 learners (males, N=14, and females=26) were chosen as the respondents. The respondents were within the age range of nineteen to thirty-one years old.

### Instrumentations

The first instrument used in this study was the Oxford Quick Placement Test ([www.oxfordenglishtesting.com](http://www.oxfordenglishtesting.com)) employed to homogenize the participants. We intended to select participants with A1>A2 high Elementary and Pre-intermediate (Basic-user, way stage) levels, i.e., those who match relevant CEFR profiles. Also, the proposed game, *The Lost P*, is designed by Construct 2.0 software which is a flagship of Scirra (game software creator team) developed in 2007 by its predecessor Directx9 for windows desktops.

### Materials

To implement the concept of ZPD in the DA of writing task, the scale of Aljaafreh & Lantolf (1994) which is the basis for the instruction and feedback was used for both the experimental and control group. The experimental group received the same pre-tests and post-tests at two levels: Zone of Actual Development assessment (ZAD) and Zone of Proximal Development (ZPD) assessment. The experimental group received the designed video game (*lost p*). The control group received a teacher-oriented method. The instructional material for both the control and experimental group was extracted from *Longman Academic writing series1: sentences to paragraphs*, second edition, 2014, by Pearson Education formerly called *Fundamental of Academic writing*.

### The Scenario of the Designed Game

The designed game developed and constructed by the present researchers used the tenets of Dynamic Assessment. *The lost P* was designed to activate learners' potentiality and target underlying elements of ZPD. The content of the scenario was planned in a way that it moves from a less-intrusive policy to a more intrusive one. At first, the game did not provide many hints, but as the player pursued the voice inside the game, more prompts were offered. The voice inside the game was interactive and helped the students to find a path to the game. Arthur was the main character of the game with whom the player had

to identify himself/herself and go through 50 levels of the game. The first level is the easiest one and as the player moves to further steps, the levels become complex in terms of grammar and vocabulary, and the complicated rules encapsulated within the game.

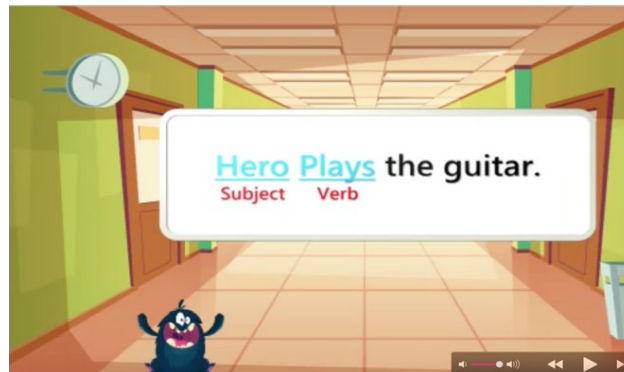


Fig 1. Examples of teaching grammatical points

These levels were organized based on the Longman Academic Writing Series, which starts with teaching grammar, vocabulary, word order, and learning about adjectives. The pictures below provide an example of one of these steps.

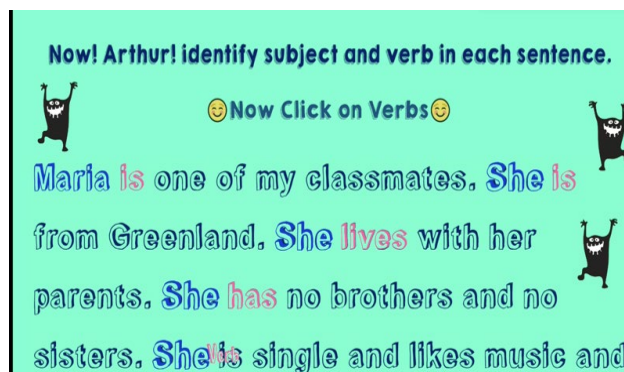


Fig 2. Examples of identifying nouns, pronoun subjects, and verbs of sentences

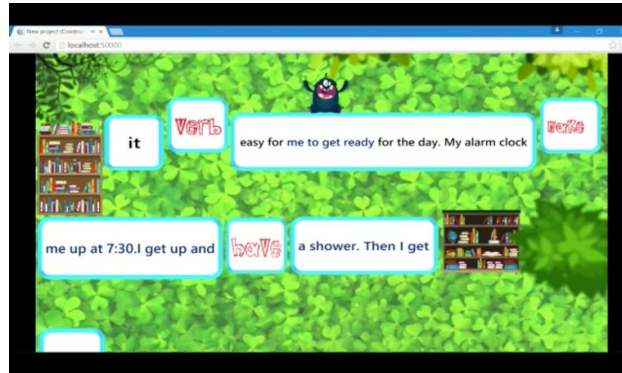


Fig 3. The player is supposed to choose the correct verb form

As the game goes forward, the player gets familiar with paragraph writing techniques such as editing and revising, getting an idea, drafting, pre-writing, and linking ideas techniques. Finally, the last steps teach topic sentences, developing ideas techniques, and supporting and concluding sentences in a stepwise fashion.

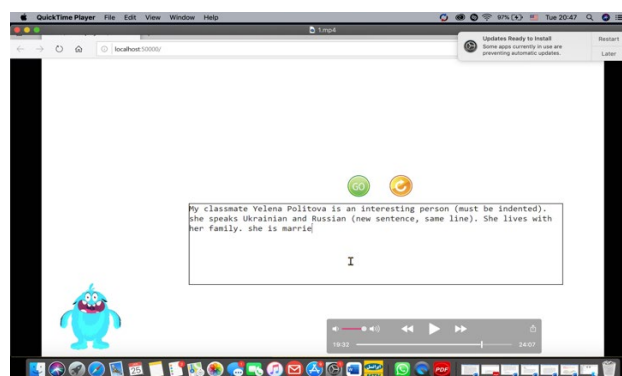


Fig 3. Prewrite to get idea technique





Fig3. Examples of teaching main parts of the paragraph.

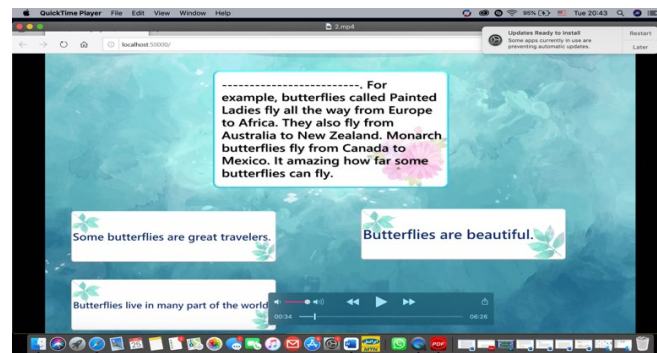


Fig 5. Identify the topic sentence

The learners should gain mastery in one level and then enter the next level. Each level takes almost 10 to 15 minutes (depending on the player's computer skill) to accomplish the task.

### Data Collection

This section of the study provides a log of how the present study began (since 2018), was implemented, and assessed. At first, all-volunteer respondents signed the consent letter declaring they were fully aware of the study's goals. It is worth mentioning that the researchers conducted this study with the confidence that all the participants in the control and experimental groups were not involved in other research studies. Also, they did not receive any instructional writing program, so the result would be pretty attributable to the experimental group. Next, the study began with administering a pre-test to all groups in order to diagnose the learners' Actual Zone of Development (AZD) and their writing proficiency. There were three open-ended questions given to the learners in the pre-test

phase. The learners were asked to choose only two of them. The same three questions were given to them in the post-test. For both the teacher and the game as a mediator, the pretest-intervention-posttest format was conducted in the process of DA assessment. Sternberg and Grigorenko (2002) discerned two subcategories within the interventionist approach: “*sandwich*” and “*cake*” format (p.27). The present study employed *Sandwich* format of interventionist DA in which the mediator assisted the learners during the assessment session based on some predetermined criteria i.e., the self-regulatory scale of Aljaafrah and Lantlof (1994).

Four optional questions or prompts (the topics of pre-test and post-test) were given to the participants who were asked to choose two of them. The genre of writing tasks that students were supposed to practice and learn through the designed game was *personal writing*. Students were asked to write two paragraphs in fifteen minutes. The questions used in this phase were:

- 1) How would you describe your hometown?
- 2) How would you describe your daily routine?
- 3) How would you describe your favorite day?
- 4) What is the weather in the area where you live?

It is worth mentioning that in each session, the learners in the experimental group (DA1) played 50 levels of the game in one session. In the control group (DA2), the learners were also taught 7 sessions and received 30 to 40 minutes of instruction. The themes of the classes were about personal writing, including daily routine, describing a picture, favorite food, dairies, etc.

During the second phase of the study, the first researcher gathered data from five students who were exposed to the video game based on the Cochran formula in order to determine an adequate sample size that can estimate the result for the whole population of the structured interview group (Cochran, 1977; Singh & Chuadhury, 1985). The data were obtained over two weeks in August 2021. The questions were in Farsi but the respondents were free to answer either in English or Farsi language. Then the responses were transcribed and labeled through a theme-based approach (Dörney, 2007).

### Data Analysis

L2 writing assessment has always been threatened to human subjectivity and biasedness (Kodno-Brown 2002, Schaefer 2008). Furthermore, ample studies suggested that for assessing L2 essays using rubrics, which are based on standard criterion, increase in the validity and reliability of the scores and raters would reach greater agreement and

consistency to evaluate a writing task (Cumming 2001, Spurr 2005, Weigle 2013, Hyland 2004). Hence, this section was initiated with the assessments of IELTS inter-rater and intra-rater reliability to control accountability and reliability of scoring. The first researcher was certified and trained by IELTS IDP, and knew IELTS IDP examiners. She asked two IELTS writing examiners to rate the students' essays based on the IELTS writing band score scale.

After assigning pre-scores and post-scores by the raters, a Pearson product-moment correlation coefficient was calculated to measure the strength of association and compare the variables. Furthermore, to compare the performance of gamified and non-gamified groups, a set of paired-sample t-tests was run to uncover any potentially significant difference in their performance before and after the treatment. The data were analyzed employing IBM SPSS Statistics 27.

It is worth mentioning that the trailer of the designed video game to refer to is available on YouTube: <https://youtu.be/byWd04B2uAQ>.

**Result & Discussion**

To answer the first research question, the study conducted an Independent Samples t-test to compare the pre-tests scores of experimental and control groups.

Table 1  
*Independent Samples Test for pre-test of groups*

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
pre	Equal variances assumed	12.374	.001	-1.410	38	.167	-.554	.393	-1.350	.242
	Equal variances not assumed			-1.410	30.675	.169	-.554	.393	-1.356	.248

According to Table 1, the mean differences for both the experimental and control groups in the pre-test were 0.554. As can be seen, the sig. (2-tailed) value is 0.167 (P-value >0.05); therefore, no statistical significance was found among the gamified and

non-gamified groups in terms of the students' performances in their pre-test scores. In other words, all the students were similar in their writing ability at the beginning stage.

Table 2  
*Independent Samples Test for Post-test of Groups*

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	2.925	.095	-2.988	38	.005	-.717	.240	-1.202	-.231
Post Equal variances not assumed			-2.988	36.609	.005	-.717	.240	-1.203	-.231

As Table 2 shows, the result from the independent samples t-test revealed that a statistically significant difference was found between the groups; the sig (2-tailed) is 0.005. Thus, respondents in the experimental group showed significant improvement over the control group. This difference is the result of explicit teaching of the game, as the experimental group in the post-test performed better than the control group.

Table 3  
*The effect sizes*

GROUP 1	GROUP 2
M1	M2
3.613	3.058
SD1	SD2
1.517	0.889
Cohen's <i>d</i>	Effect-size <i>r</i>
0.4463912049134468	0.2178356637740204

According to Cohen (1988, pp.284-7), there are three categorizations for the interpretation of effect size: .01=small effect, .06= moderate effect, and .14= large effect. The effect size in this study was above 0.21, confirming the significant difference between the control and experimental group.

To answer the second research question, the one-way chi-square formula was used to determine whether the frequencies observed across the writing characteristics differ from what is expected to be by chance.

Table 4

*Writing characteristics and Improvements \* Groups Cross tabulation*

Improvements		Groups		Total
		Control	Experimental	
Coherence and cohesion	Count	1	3	4
	Expected Count	2.0	2.0	4.0
Idea generation and development	Count	1	3	4
	Expected Count	2.0	2.0	4.0
Accuracy of sentences	Count	5	0	5
	Expected Count	2.5	2.5	5.0
Sufficient lexical and grammatical resources	Count	4	1	5
	Expected Count	2.5	2.5	5.0
Poor and limited range of vocabulary	Count	0	2	2
	Expected Count	1.0	1.0	2.0
More accurate complex structures	Count	0	1	1
	Expected Count	.5	.5	1.0
More attention to the details	Count	0	2	2
	Expected Count	1.0	1.0	2.0
More profound mastery over idea generation	Count	0	2	2
	Expected Count	1.0	1.0	2.0
Poor and limited range of vocabulary	Count	3	0	3
	Expected Count	1.5	1.5	3.0
Task achievement	Count	0	1	1
	Expected Count	.5	.5	1.0
The standard format (organization)	Count	1	2	3
	Expected Count	1.5	1.5	3.0
The supreme command of lexical resources	Count	0	1	1
	Expected Count	.5	.5	1.0
Use of formal words	Count	4	0	4

## IRANIAN ENGLISH LEARNERS' PERCEPTION OF NATIVE AND NON-NATIVE

		Groups		Total
		Control	Experimental	
Expected Count	Expected	2.0	2.0	4.0
	Count			
Writing under the word count	Count	1	2	3
	Expected	1.5	1.5	3.0
Total	Count	20	20	40
	Expected Count	20.0	20.0	40.0

As can be seen in the table above, the control group (1) made low writing characteristics than the experimental group (2). For example, the control group had a poorer and limited range of vocabulary in their writing. On the other hand, during the treatment, the experimental group had considerably better performance, and they paid more attention to the details, i.e., idea generation, task achievement, lexical resources, and grammar. The reported sig value is 0.02 and it is less than 0.05 therefore, there is a statistically significant difference between gamified-writing task writing characteristics and non-gamified writing tasks. Thus, the *Lost p* game on the role of mediator had a strong influence on learners' task achievements and scores. Within the context of assessment, the game successfully starts with the less explicit prompts, lets the learner identify the location of errors, and then provides progressively more explicit ones to help the learner recognize the correct response through the journey.

To assess the reliability of the newly-designed video game, Cronbach's alpha was measured and came to be .84 which is a desirable and acceptable reliability index.

### Result of Interviews with Students

As for the study's qualitative objective regarding the learners' responses to the role of the *lost P* game instructions in writing development, the researchers exploited semi-structured open-ended interviews and theme-based categorization to investigate the data (Dörnyei, 2007). To measure the inter-coder reliability, the researchers asked a second coder, holding a Ph.D. in TEFL, for assistance. To determine consistency among coders, the inter-coder reliability (Cohen, 1960) analysis using the Kappa statistic was performed in IBM SPSS Statistics 25. All Kappa values were higher than 0.70, indicating acceptable reliability and consistency of all coding schemes used for qualitative coding data in this study (Stemler, 2001).

The coding results for both coders included: 1) motivated to learn 2) focused attention to both internal and external stimuli 3) being productive 4) better retention of concept and low stress 5) fewer errors 6) incorporation of language skills 7) meaningful sentence 8) motivating, 9) paraphrasing 10) accurate complex sentences, 11) mechanics and 12) development. The coding results for the game group included: 1) creativity 2) interaction 3) fluency 4) challenging 5) good command of very broad lexical resources 6) idea-generating 7) enjoyment 8) accuracy 9) autonomy 10) problem-solving 12) critical thinking 13) writing more subordinate clauses and complex sentences 14) writing without anxiety 15) positive feedback 16) motivating and 17) organization.

Here are some of the statements made by the game players in the experimental group as well as the researcher's questions and brief explanations:

1) *Do you think that the Lost p game boosts your motivation to learn paragraph writing? Why?*

2) *To what extent the lost p game could improve vocabularies, getting idea and drafting techniques to improve your writing abilities? Please elaborate on this question.*

Learners in the game group mentioned that learning new vocabulary and grammar through computer games could make the tasks easy and understandable in an amusing way. Moreover, they maintained that *the Lost p* provides them with new unknown lexis, and collocations and with the least memory load on their minds. One of the interviewees said:

[At first, ... this type of computer game was strange to me. Nevertheless, when we compared our learning to a teacher-based class, especially during the first steps of the game, we noticed it was much more effective because it was full of colorful pictures, music, sounds, activities, and inputs. So, the game helped me to memorize new vocabulary and learn new structures easily. I believe the scores given by the game were less stressful than the teacher's marks and were more challenging and motivational. I really enjoyed writing after playing. I was not confident about the accuracy of the words though].

The researchers found out that teaching paragraph writing rules, such as drafting, getting idea techniques, topic sentence development, and integrating them with the elements of the game were entertaining for the learners. Moreover, digital games can create an environment that is mainly learner-centered and help them to recall the instructions encapsulated through the scenario of the game. One of the participants said:

[I really enjoyed playing *The Lost P* game, it was very amusing yet challenging. The game was about the story of a cute monster, so I could remember every moment of his journey to the jungle, sea, dark castle, and other different scenes. So, in order to help this little monster, I must learn the vocabulary and grammar of the new stages, and win the trophy. I needed to concentrate fully to reach the paragraph-developing stages. During the last stages, I could recall all the things that happened to me, so I found out that I could make longer sentences and even paragraphs properly. It was unbelievable!]

Here, the disputed point is that the students could not think of an idea about how to employ vocabulary and grammar in their writing tasks. Moreover, they could not deal with word repetitions, since they were not acquainted with synonyms, antonyms, English definitions, clear explanations, or realistic models. Therefore, in order to draw their attention to all dimensions of writing proficiency, they need to be reflective on linguistics components and structures.

The students in the experimental group stated that through systematic practice, they could improve their range of lexis and writing skills since they could use the words and structures in a playful environment more effectively and correct themselves in troubleshooting stages. One of the interviewees said:

[ Actually, I already played some computer games about boosting vocabulary, but I had no experience with writing games. To me, it was very motivational since the game was about the story of the little monster, Arthur, so every step of the music and pictures stuck in my mind. Also, the game had an English dictionary for unknown words to easily click on the words, and I had to memorize the definition in order to help Arthur with further steps and win the reward. Although time was limited; the game had some review stages, so I could recall the previous instructions, and learn many strategies. Another exciting thing about the game was stages related to rules of paragraph development which provided the player with related pictures and everyday topics]

Learners in this group stated that compared to teacher-based classes, playing the digital game helped them reduce their stress and anxiety. Moreover, they learned to develop argumentative essays and could rephrase words resulting in more complex sentences. It seems that the *Lost P* game facilitated idea generation and was concerned about technical writing aspects including capitalization, spelling, etc. One of the interviewees said:

[To me, it was very important to write a meaningful and creative text; the *Lost P* game helped me not only write paragraphs with specific sentences related to the topics but also develop more fruitful ideas. I tried to write complex sentences and avoid using



repeated words. Through the process of playing, by clicking on one word, I could get the synonym and employ them in developing paragraphs for later stages. Interestingly, the last steps were more about organizing and writing different parts of a paragraph, so I could write about everyday topics like describing my hometown, applying the novel words, and linking them to the topic. I was able to write more with less interruption]

The statements by the interviewees revealed that video game instruction could act as a mediator, providing stimulus for them to write about a common topic critically, and creatively since they could go on to discuss the topics with the readers effectively. Also, the researchers found out that educational video games can provide learners with positive energy and emotional feedback by giving them rewards and trophies. Thus, the game helps them explore and identify patterns of thought and think around a certain topic. The third participant noted:

[During the play, the voice asked me to remember the arguments and the mistakes from the previous stage, and this technique helped me a lot. Also, during the last stage, I could remember the pictures, the related stories, and positive feedback from the voice about the topics, so it was very stimulating, and I felt energetic to continue the game].

Generally, doing tasks was not uninteresting for the game players anymore, and their productions no longer looked like incoherent texts. They could employ the novel words in more complex sentences since their intervention phase was not based on repetition and memorization but based on generating ideas, rephrasing, actively interacting with all levels of the game, and inspiration. Game activities and stages could aid players to demonstrate the ability to develop more meaningful sentences autonomously since they had already established the necessary skills.

## Discussion

The result of the study revealed that there was a statistically significant mean difference between the writing ability of the game group and the non-game group. As can be inferred from the result, the educational video game encouraged language learners to promote social interaction in a playful way that made them feel more confident to communicate in the target language. Since the game's scenario offers a player freedom of choice in a way that thoroughly lets him engage in meaningful participation in all stages (Annetta, 2010; Lin, Peng, Pfeiffer, 2012), the need for autonomy fulfills our postulation. Besides, throughout the whole scenario, the player was supposed to take the role of the main character and follow the shared goal in different situations, which induces a sense of relevance for them. Additionally, through providing hints and prompts, the voice has

the role of co-player and scaffolding, which emphasizes the effectiveness of social relevance. On the whole, these conditions contribute to a better learning atmosphere for second language learners to study the language, which ends in optimum outcomes with fewer errors and more meaningful sentences for the non-game language learning environment. Furthermore, the interpretation of responses to the interview questions revealed that the designed computer game through scaffolding could successfully elicit the intended effect more than a teacher and take the lead in provoking the learner's psychological satisfaction.

The fact that video games have the most practical instructional activities for young learners is quite apparent because they are a natural part of their existence. Nedomová (2007, p.17) argues that “young learners are not able to pay their attention for more than 10-20 minutes, and after that, they start to be bored and tired.” Moreover, younger generations have a more imaginative and ingenious mind and learn in a way without being aware of it. Besides, with the help of teachers' new lessons, they are able to build and practice knowledge, skills, and abilities on top of their previous experience (Nedomová, 2007, p. 28). Therefore, the best way to direct this capacity in teaching is by using games. Also, Bekiri (2003, p.1) states that a gadget such as an educational game offers a chance for the teacher to tailor instruction to learners to acquire new forms and lexis productively. However, what should be taken into a consideration is that a “board game” or a “complicated game” is not usually more effective and learners may find it difficult to understand a long list of rules. Similarly, since young learners love to be the center of attention, the designed games must include badges, trophies, and achievements.

However, the problematic issue is that most of the teachers in EFL classrooms are reluctant to apply games in the classroom (Yolageldili & Arikan, 2011). Yolageldili and Arikan confirmed that Turkish teachers accepted the effectiveness of using games in teaching, however, they do not use games frequently in their classrooms. The justification here might be related to the educational system in a country. In countries where the conventional and traditional forms of teaching (teacher-fronted) are followed, employing games is not frequent in the classrooms since a class will alter the formal one when a game comes to the scene, and a kind of chaotic atmosphere will dominate in classrooms.

Although the results of the current study addressed particular aspects of enhancing writing ability, replication of this study with a different scenario, game elements, learning contexts, and varying theories and methods would be the logical next steps. Further, since just a few studies about enhancing composition skills have been implemented with

simulation; designing more computer games needs to address motivational problems for the target group within real working contexts.

### Conclusion

The findings of the study provide EFL teachers with the evidence that the game-based method may be an alternative to traditional teaching strategies and it brings about many accomplishments in writing proficiency. However, the degree of this accomplishment depends on the context of teaching and the learner's level of proficiency. Notably, teachers are supposed to have an efficient literacy of all the domains of classroom assessment to fulfill the demands and expectations of learners and stakeholders competently (Alavi, Rezvani, & Yazdani, 2022).

Game strategies have a facilitative role in language learning and assessment; it is important that teachers incorporate game assistant teaching strategy instruction into their teaching procedure and evaluation. Teachers should provide students with abundant opportunities to practice skills with authentic tasks. As the findings of this study showed, learners should be equipped with applicable knowledge of these types of strategies so that they can use them in different situations.

For implementing game-based instruction in EFL classes, it is necessary to train teachers and make them aware of the importance of strategies and the way strategies should be taught. This matter highlights the role of teacher mentors in familiarizing teachers with the latest theories and approaches toward language teaching. Therefore, teacher trainers should make EFL instructors aware of the importance of strategic instruction and afford them the opportunity to know how to teach strategies and implement them in their practice. This applies to all methods, including reading strategy instruction.

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### Appendix A

Regulatory Scale – Implicit (strategy) to Explicit adapted from  
(Aljaafreh & Lantolf, 1994, p. 471).

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0. Tutor asks the learner to read, find the errors, and correct them independently prior to the tutorial.
  1. Construction of a "collaborative frame" prompted by the tutor's presence as a potential dialogic partner.
  2. Prompted or focused reading of the sentence that contains the error by the learner or the tutor.
  3. Tutor indicates something may be wrong in a segment (e.g., sentence, clause). "Is there anything wrong in this sentence?"
  4. Tutor rejects unsuccessful attempts at recognizing the error.
  5. Tutor narrows down the location of the error (e.g., tutor repeats or points to the specific segment which contains the error).
  6. Tutor indicates the nature of the error but does not identify the error (e.g., "There is something wrong with the tense marking here").
  7. Tutor identifies the error ("You cannot use an auxiliary here").
  8. Tutor rejects learner's unsuccessful attempts at correcting the error.
  9. Tutor provides clues to help the learner arrive at the correct form (e.g., "It is not really past but something that is still going on").
  10. Tutor provides the correct form.
  11. Tutor provides some explanation for use of the correct form.
  12. Tutor provides examples of the correct pattern when other forms of help fail to produce an action.
-