

# Towards a Moodle-Based Assessment of Algerian EFL Students' Writing Performance

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**ABSTRACT:** The present study examines the effect of a technology-based assessment on the writing performance of Algerian English Foreign Language (EFL) students. Forty-two first-year EFL at the English Department at Tlemcen University (Algeria) took part in the experiment. They were divided into an experimental group ( $n = 21$ ) and a control group ( $n = 21$ ). A pre-test and a post-test were used as research instruments before and after the administration of the treatment, respectively. The data were analysed quantitatively using IBM SPSS (20.0). The results revealed that the Moodle-based e-assessment had a significant effect on the performance of the experimental group. We argue that the proposed type of assessment had some pedagogical, practical, and emotional attributes that explained students' improved scores. We also believe that the e-assessment acted as pedagogical teaching support to traditional evaluation.

**Key words:** e-assessment, EFL, language learning, Moodle, writing.

## Hacia una evaluación basada en Moodle de la producción escrita de estudiantes de ILE en Argelia

**RESUMEN:** Este trabajo examinó el efecto que una evaluación virtual a través de Moodle tiene sobre la producción escrita de estudiantes de inglés como lengua extranjera (ILE) en Argelia. Para ello, se diseñó una investigación experimental con un grupo control pre-test-post-test. Participaron 42 estudiantes de ILE del departamento de inglés de la Universidad de Tlemcen (Argelia). Se dividieron en un grupo experimental ( $N=21$ ) y un grupo control ( $N=21$ ). Se utilizaron un pre-test y un post-test respectivamente antes y después del experimento como herramientas de investigación. Los datos se analizaron cuantitativamente utilizando SPSS IBM (20.0). Los resultados revelaron que la evaluación a través de Moodle tuvo un efecto significativo en los resultados del grupo experimental. Los investigadores concluyeron que el tipo de evaluación propuesto tenía algunos atributos pedagógicos, prácticos y emocionales que explicaban la mejora de las puntuaciones de los estudiantes y se cree que la evaluación virtual actuó como un apoyo pedagógico a la tradicional.

**Palabras clave:** evaluación electrónica, ILE, enseñanza de lenguas, Moodle, escritura.

## 1. INTRODUCTION

Writing is an intentional and calculated system that is systematic and ordered (Coe et al., 1985). This productive skill and linguistic output (Sárosdy et al., 2006) comprises the

graphic representation of symbols that combine letters together in order to form meaningful, organised, and coherent words, sentences, or texts. In addition, it enables one to express an opinion in a written format to the reader through fixed and distinguishable symbols. This skill is of paramount importance for students' education as well as their professional careers. Indeed, its sound mastery is conducive to successful learning (Rao & Durga, 2018). As Harmer (1998) states, the visual portrayal of written language is useful for students' memory, since it lets them note down newly learned words and see how the language components are linked and constructed. It thereby reinforces their language learning and offers room for enduring language development.

Though Harmer (1998) highlights the benefits that can be gained from the teaching of writing to EFL learners, Adas and Bakir (2013) regard this practice as a daunting task for this category of learners who are not native English speakers. According to Klimova (2014), the issues that these students face stem from their lack of knowledge of the foreign language lexicon and discourse structures. For İnceçay and Genç (2014), the difficulties are due to the cognitive, structural, and organisational aspects of writing. In addition, students experience a sort of anxiety with regard to it, manifested by an incapability to express their ideas or write a coherent text (Ponnudurai & Jacob, 2014; Sarkhosh & Najafi, 2020). However, it could also be caused by the fact that writing is a complex phenomenon because of the cognitive and sociocultural processes involved in it, as argued by scholars such as Adas and Bakir (2013), Heaton (1988), Pooroti and Asl (2016), and Nosratinia and Razavi (2016).

In Algeria, it should be noted that these students reach higher education after seven years of English studies in both middle and high schools (lower and higher secondary school). After that, they have to attend a compulsory writing module at the university for three years in a row. Yet, despite the many years spent studying English, their writing proficiency is considered, according to Ahmed (2018), to be low intermediate level. This author's review of writing assessment in the Algerian EFL classroom reveals what Algerian scholars deem to be the main reasons for learners' low writing proficiency, as shown below:

- Writing deficiencies as far as grammar, vocabulary, mechanics, coherence, and cohesion are concerned;
- A lack of writing strategies;
- Negative attitude towards the skill itself;
- The growing number of students per group;
- The insufficiency of assessment activities and practice caused by the growing number of students per group and the limited time allocated to teaching the module;
- The reliance on traditional assessment methods which hinder their creativity and critical thinking.

Although we believe that students' writing problems at the English department at Tlemcen University (Algeria) are of diverse origins and factors, we have tackled only one aspect: Ahmed's (2018) last point, which is assessment. Because this has always depended on traditional paper-based evaluation in the writing module, we wished to investigate what would happen if it were changed. More specifically, we wondered whether introducing te-

chnology as an alternative to correcting learners' work would improve their writing, and, thus, be a possible solution to those issues. In light of this line of thinking, we created the following research question to guide the study:

- RQ: Does the Moodle-oriented approach towards e-assessment have any significant effect on the writing performance of first-year Algerian EFL students at Tlemcen University?

In order to give an answer to this question, we formulated the following null and alternative hypotheses, respectively:

- Hyp<sub>0</sub>: The Moodle-oriented approach towards e-assessment has no significant effect on Algerian first-year EFL students' writing performance at Tlemcen University.
- Hyp<sub>1</sub>: The Moodle-oriented approach towards e-assessment has a significant effect on Algerian first-year EFL students' writing performance at Tlemcen University.

## 2. THEORETICAL BACKGROUND

The emergence of globalisation alongside technological development in the 21<sup>st</sup> century has generated a change in students' ways of learning. This has further reinforced the use of ICT not only as a teaching tool but also for assessment purposes (Ridgway et al., 2004). A growing interest has been witnessed among institutions and instructors in higher education regarding the provision of assessment in line with contemporary society (Boitshwarelo et al., 2017). Consequently, there has been a shift in various parts of the world from conventional paper and pencil evaluation to more modern ways of assessing students that have boosted the improvement of learning outcomes (Chatzigavriil et al., 2015; Chaudhary & Dey, 2013; Al-Qdah & Ababneh, 2017), thus giving birth to e-assessment (Mojarrad et al., 2013; Tomljanovic & Polic, 2015; Jordan, 2013; Crisp, 2011; Appiah & Tonder, 2018; Said et al., 2019). This represents a genre of evaluation that is solely dependent on a technological device for the sake of performing assessment-related tasks (JISC, 2007).

Among the tools that are used for the deployment of e-assessment, Crisp (2011) cites the Moodle platform. It should be noted that the acronym Moodle stands for Modular Object-Oriented Dynamic Learning Environment. It is a Virtual Learning Environment (VLE), which is a type of online teacher-student communication in an e-learning environment. It is also a Learning Content Management System (LCMS), which helps teachers to create and manage their own personalised online course, exchange documents, intervene instantly within the course, give grades, provide assignments, assess, and see their students' progress over time. Unlike commercial VLE systems, Moodle is an Open Source Software (OSS), which means that a free downloadable system is accessible to everyone. It is a flexible and user-friendly system that students can access whenever and wherever they want (Al-Ajlan & Zedan, 2008; Wu, 2008).

According to Creixell and Ganter (2016) and Lien (2015), Moodle is one of the best known and most utilised platforms in the world. This learning tool has been implemented in

229 countries worldwide and its users are estimated at more than 172 million (stats.moodle, 2019). Its use in the EFL context, particularly in the writing classroom, has been the subject of several studies addressed by a variety of scholars. A review of those studies seems to show generally positive outcomes regarding the enhancement of learners' writing. For example, Nagatomo (2006) sought to teach 22 EFL learners, at a Japanese national women's university, to write formally by introducing Moodle as part of her writing teaching. To do so, she employed action research. She recorded the amount of time those learners were spending on Moodle, and calculated the number of words they wrote in online journal writing and forum discussions. The findings of her study demonstrated that not only did students consult the Moodle home page of the class, but also that their writing ability developed considerably.

A further instance would be the pilot study carried out by Wogu et al. (2014). In their work, 267 students at Covenant University, Nigeria, were offered a programme in which Moodle was used for teaching, learning, and evaluating the writing skill. In the beginning, learners had the leeway to choose between this Moodle programme and another traditional one. The majority favoured the other course which did not imply the use of any ICTs. According to the investigators, half of the participants had what they called "a phobia" of any Moodle-associated writing instruction or evaluation. However, after a decision that was made by the faculty members, students were obliged to attend those Moodle courses. They were given lectures and assignments on the platform, engaged in forum discussions, and then assessed. After that, they had to provide their feedback and appreciation from the online experience by answering a questionnaire. Findings showed that students held two distinct positions for such an approach: opponent and fervent, yet those who supported e-assessment were slightly more dominant than the others. Advocates enjoyed Moodle which, in their view, resembled the social networking sites that they usually use. They highlighted its necessity at Covenant University to reach the excellence and the status of the most prestigious universities in the world. Additionally, the phobia that they felt at the beginning of the study tremendously decreased. The investigators also made a longitudinal study upon which they compared students' scores after introducing the Moodle e-tests within the university over the years. Results have shown enhanced grades as the years go by.

Similarly, Lien (2015) undertook action research with 41 second-year students of English at Hue University, Vietnam. She was able to use blended learning, combining a face-to-face course with a Moodle writing course. The goal was to assess whether the Moodle course enhanced students' writing abilities or not, and to highlight the issues they faced. She used a questionnaire, an interview, students' portfolios, and a pre-test and post-test. The study revealed fruitful results that led to the improvement of students' writing.

It has been noticed, throughout our extensive review of the literature, that when it comes to the integration of Moodle in the EFL writing classroom, scholars tend to be more interested in the collaborative aspects of the platform, i.e. peer feedback, group works, wikis, and forums—rather than the evaluative ones. For instance, Adas and Bakir (2013) studied the impact that the blended learning approach towards teaching writing had on 60 undergraduate Palestinian EFL learners' paragraph writing. Coherence, mechanics, and grammar were assessed. To achieve their aims, they relied on an experimental study and employed the Moodle platform for the design of varied assessment tasks. Students were asked to analyse the errors of their peers, to comment on a picture, and then to write an extensive paragraph.

Their work showed improved writing ability in the experimental group in comparison with the control group.

In a similar line of research, Bouziane and Ziad (2018) carried out a quasi-experimental study on the impact of online self- and peer assessment, which are both generated by Moodle, on the writing performances of 48 learners at Hassan II and Chouaib Doukkali Universities, Morocco. The researchers opted for a blended instruction that merged the face-to-face writing course with online paragraph writing. The informants were engaged in collaborative group tasks using Moodle workshops. After attending a writing course, they were asked to self-assess their written productions on Moodle first, then those of their peers, and last came the researchers' assessment. The researchers made use of a pre-test and a post-test to compare the tests' scores. The findings yielded positive outcomes.

Another example of collaboration can be found in Ardiasih et al. (2019), a descriptive research study in which they explored the effect of wikis (modifiable web documents created in collaboration with many authors that are available in Moodle) on the writing abilities of 29 EFL students at Terbuka University, Indonesia. In their study, wikis served as an online collaborative writing technique through which they examined their consequences on learners' argumentative essays. Learners were asked to edit and provide feedback on their peers' written performances. Data were gathered by means of statistical tests and observation reports. Here again, enhanced writing abilities were achieved as far as argumentative essays were concerned.

Gava and Dalla Costa (2018) examined the use of Moodle forum discussions as part of a writing activity. They proposed a socio-cognitive approach that combined collaboration, higher-order skills, and online dialogues, and aimed to find out what results it would have on learners' writing development. Thirty-two students from Cordoba University, Argentina, took part in a quasi-experimental approach. The conclusion obtained from their research was indicative of the efficiency of the method and the improvement of learners' writing abilities. This was due to the construction of knowledge that the approach generated within the online social context.

As far as Algerian research on the introduction of Moodle in the EFL classroom at the university level goes, our extensive investigation of numerous databases and resources has led us to the conclusion that few studies have tackled its implementation within the writing module, particularly as an assessment tool. It is worth mentioning that although Moodle has been applied in most Algerian universities, and at Tlemcen University in particular for a couple of years, it is still in its early stages in the English Department. In effect, after undertaking a small investigation by informally asking some of the newly recruited English teachers, without recording them, the researchers found that those instructors had to undergo mandatory Moodle training. However, they admitted that once the training was over, only a minority of them used it in their teaching practice.

The objective of the current study was to propose an innovative method of evaluation that would meet the requirements of contemporary society, facilitate the teacher's work, motivate students to learn, and modernise the existing situation. It tried to introduce a new perspective to the deeply-rooted traditional method of evaluation in the writing module at Tlemcen University (Algeria). It put much greater stress on formative assessment as it first diagnosed the different problems learners were facing in writing, and then provided remedial work and feedback accordingly.

### 3. METHOD

This section describes the research design, the participants of the study, the data collection instruments, the procedure, and the analysis.

#### 3.1. Research design

The present study examined the effect of integrating Moodle into the evaluation of Algerian EFL students' writing production in the writing module. It investigated whether the adoption of a Moodle-based e-assessment would improve their writing performances or not. In other words, it sought to find a cause-and-effect relationship between these two elements. This could not be observed unless it was specifically experienced with the participants. For this reason, the experimental study was chosen as the appropriate research design for such a task. Therefore, the study used a randomized pre-test-post-test control group design. This design involved a number of elements. First, the participants were randomly assigned to an experimental and a control group. After that, they were measured twice (i.e., in the pre-test and the post-test). Indeed, they were pretested before administering the treatment. This would confirm that both were equivalent prior to the experiment, and eradicate the interference of extraneous variables. Finally, they were post-tested in order to compare the results of the two groups (Fraenkel et al., 2012).

The design encompasses two variables: an independent and a dependent variable. The independent variable, also called experimental or treatment variable, is deliberately controlled and manipulated. The dependent variable, also referred to as the criterion or outcome variable, can be observed and measured. In other words, the former is supposed to affect the dependent variable, and the latter is where change is expected to be observed (Leroy, 2011). As far as the study was concerned, the Moodle-based e-assessment represented the independent variable while the students' scores in the writing tests were the dependent variable.

#### 3.2. Participants

Forty-two first-year undergraduate EFL students at the English Department at Tlemcen University (Algeria) made up the informants of the study. They were taught similar classes and assessed upon the same tests, examinations, and grading scale during the academic year 2018-2019. The researchers deliberately selected this level because it was believed that it would be preferable to start the experiment with beginners as a first step, to see its effect, and then move up to higher levels. Moreover, first-years were assumed to be more involved and open-minded to a new experience in comparison with the other levels.

#### 3.3. Research Instruments

Due to the fact that tests were a requirement of the experimental design that the present study employed (Fraenkel et al., 2012), a pre-test and a post-test were employed to collect data. The objective behind the pre-test was twofold: to test the homogeneity of the variances of the two groups and the equivalence of their writing proficiency at the beginning of the

study. As regards the post-test, it aimed to assess a statistical difference in the means of the two groups once the experiment was finished.

### 3.4. Procedure

Along with tests, the randomisation of the sample also represented a prerequisite of the design (Fraenkel et al., 2012; Kumar, 2010; Cohen et al., 2007; Perry, 2011; Grubišić et al., 2009). For the generalisation of the findings on the target population, probability sampling that encompassed simple random sampling was used for the selection of the informants. It should be noted that one of the researchers taught the experimental group for over one academic year. Being a novice and part-time writing teacher, the only way to comprehend the teaching/learning situation in the module, to know specifically how to elaborate those tests, and to have better control over the experiment, was to teach that group.

However, the selection of the group was made randomly before teaching them and launching the experiment. In other words, no prior information about the students in that group nor their writing abilities was in the possession of the researchers. The experiment consisted of mandatory workshops, as additional practice, which were undertaken during extra sessions outside of the classroom to avoid taking important time away from teaching hours. This random selection was also applied to the participants in the control group, who were taught by another writing teacher. Furthermore, the equivalence of the level of the two groups prior to the launch of the experiment was part of the adopted design (Fraenkel et al., 2012; Cohen et al., 2007).

Firstly, a pre-test was held by mid-January 2019 to ensure that they did indeed have similar writing abilities. This was due to the fact that the equivalence of the level of the two groups prior to the launch of the experiment was part of the adopted design (Fraenkel et al., 2012; Cohen et al., 2007). Before the end of the academic year in May 2019, a post-test was administered to the two groups. It explored the existence of any noticeable improvement in the mean scores of the experimental group, when comparing its results with those of the control group, after receiving the treatment.

It should be highlighted that the tests were undertaken under the same controlled conditions in terms of the allotted time (which was one hour), content, and scoring rubric. The content consisted of paragraph writing, or what Perry (2011, p.125) refers to as “open-ended/constructed response”, as this was the main goal of the writing module in the first year. In effect, the tests were created based on an already established syllabus and courses; they were only an assessment of what the students were currently studying. Hence, the topics of the paragraphs were related to the units of the writing syllabus, which encompassed descriptive, narrative, and argumentative paragraphs. As for the scoring rubric, it was adapted from a variety of sources, including Heaton’s Scoring Composition (1988, p.146), Buzzetto-More and Alade’s Writing Assessment Rubric (2006, p.262), Hyland’s Rubric for the First Draft of a University Expository Essay assignment (2003, p.210) and Analytic Scoring Rubric (2003, p.243). It only assessed general aspects like grammar, vocabulary, content and organisation. A total score was given out of 20. The topics, content, and scoring rubric were validated and reviewed by experienced teachers who gave feedback, and were subsequently refined following their advice.

It is worth mentioning that the same pre-test and post-test were administered to both the control and the experimental groups. While the control group was doing the tests only in the classroom with another writing teacher, the experimental group was performing them on Moodle with one of the researchers (who was also their teacher) in the internet room of the department (the university has well-equipped computers, and two technical support staff available in case of any problem). However, before launching the experiment and after obtaining the authorisation of the head of the department, the experimental group received two workshop sessions of 30 minutes each. The students were taught how Moodle functioned, how they would be assessed, and which criteria would be taken into account. Directly after the students submitted their online texts for grading, the researcher corrected their paragraphs. Every single mistake was highlighted in red along with a comment next to it to indicate its type, such as grammatical, mechanical, or semantic. Moreover, some explanations were given. These mistakes were attached in a downloadable feedback file that they could find whenever they logged onto the platform. They could keep it with them and go back to it whenever they wished.

Additionally, feedback comments were provided in the form of remarks, pieces of advice, and some tips alongside the correction. Students were later asked to rewrite their paragraphs by correcting all of those mistakes and taking the researchers' feedback into consideration. Following this, lessons were tailored to the students. They were intended to help students overcome their mistakes on their own through practice and revision. They comprised, for instance, informal versus formal writing, prepositions, punctuation and capitalisation, tenses, articles, avoidance of repetition, parallel structure and other elements of writing. The goal was to introduce them to formal writing. These were in the form of PDFs, word documents, pictures, PowerPoint presentations or books about academic writing and grammar that the students only had to click on to download. This method allowed students to work at home following their own pace and was aimed at boosting autonomous learning. Additionally, further explanations were provided in the classroom by the researcher, who was their teacher, on the nature of their mistakes. As can be seen, the tests of the experimental group had educational purposes, since their results enabled the researcher to measure the students' mastery of the tailored lessons, highlight the types of mistakes they produced, the areas of difficulties they encountered, and give feedback at the end. In contrast, in the control group, the tests represented a mere traditional evaluation of what had been taught without any consideration of the results obtained nor provision of feedback.

### 3.5. Analysis

As far as the tests of the experimental study were concerned, the data were analysed quantitatively using IBM SPSS 20.0. The reason for choosing SPSS for the analysis of the tests was to prove the existence of any relationships or statistical significance between the two groups by using the descriptive and inferential statistics that the software offers. The first step of the statistical analysis consisted of undertaking a normality test in order to decide on the type of statistical test to be used, i.e. parametric or non-parametric (Ghasemi & Zahediasl, 2012; Fraenkel et al., 2012; Elliott & Woodward, 2014; Shojaei & Fatemi, 2016).

The second step involved a verification of the homogeneity of variances of the two groups and the equivalence of their level in the pre-test prior to the administration of the



treatment. The last step entailed assessing the presence of any statistically significant difference between the mean scores of the two groups after the administration of the treatment. To perform such tasks, an independent samples t-test, which is a type of parametric test in which two different samples are being compared, was conducted for the pre-test and the post-test (Diamantopoulos & Schlegelmilch, 2000; Hatcher, 2003; Urdan, 2005; Hsu, 2005).

## 4. RESULTS

### 4.1. Results of Normality

In order to find out whether the two tests were normally distributed or not, the Kolmogorov-Smirnov and the Shapiro-Wilk tests were employed on the pre-test and the post-test. These tests were included within the descriptive statistics of SPSS. The outcomes of the normality test are illustrated in Table 1.

*Table 1. Tests of Normality*

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre	.109	42	.200*	.952	42	.076
Post	.102	42	.200*	.963	42	.184

Table 1 shows that the p-value in the Kolmogorov-Smirnov for the pre- and the post-test was similar (sig. = .200). As for the Shapiro-Wilk test, it was (sig. = .076) in the pre-test and (sig. = .184) in the post-test. Because the p-value in both tests exceeded .05, we can conclude that the sample distribution of the two groups was normal. This allowed us to conduct parametric tests.

### 4.2. Results of the Pre-Test

The pre-test was employed to test the homogeneity of the variances of the two groups as well as the approximation of their writing proficiency. To do so, an independent samples t-test was run. The results of the descriptive analysis are shown in Table 2.

*Table 2. Descriptive Statistics of the Participants' Scores in the Pre-Test*

	Group	N	Mean	Std. Deviation	Std. Error Mean
Pre	Experimental	21	11.29	2.327	.508
	Control	21	11.00	2.811	.613

As Table 2 shows, the mean scores of the experimental group ( $n = 21$ ,  $M = 11.29$ ,  $SD = 2.327$ ) quite closely resembled those of the control group ( $n = 21$ ,  $M = 11.00$ ,  $SD = 2.811$ ). Nevertheless, to compare the statistical significance between the scores, an independent samples t-test was run. The results are presented in Table 3.

Table 3. Results of the Independent Samples T-Test for the Pre-Test

	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	1.175	.285	.359	40	.722	.286	.796	-1.324	1.895
	Equal variances not assumed			.359	38.653	.722	.286	.796	-1.325	1.897

Table 3 illustrates that the Levene's test F value was ( $F = 1.175$ ) with significance (sig. = .285). As this was higher than .05, one concludes that the assumption of homogeneity of variances between the control and the experimental groups in the pre-test was met. Therefore, the top row of the t-test (equal variance assumed) was used. The results of the t-test indicated that the  $t$  score was ( $t = .359$ ) with a degree of freedom ( $df = 40$ ) and a p-value (sig. = .722). Since it was superior to .05, it confirmed that there was no statistically significant difference between the means of the two groups. In other words, the informants had almost the same level of writing proficiency prior to the implementation of the treatment.

4.3. Results of the Post-Test

To test the null-hypothesis that was formulated by the researchers and which stipulated that e-assessment has no significant effect on first-year EFL students' writing production, an independent samples t-test was carried out. The findings of the descriptive statistics are presented in Table 4.

Table 4. Descriptive Statistics of the Participants' Scores in the Post-Test

	Group	N	Mean	Std. Deviation	Std. Error Mean
Post	Experimental	21	12.05	2.269	.495
	Control	21	10.24	1.814	.396

Table 4 posits that the mean of the experimental group ( $n = 21$ ,  $M = 12.05$ ,  $SD = 2.269$ ) was higher than that of the control group ( $n = 21$ ,  $M = 10.24$ ,  $SD = 1.814$ ). In order to examine the significance of the difference between the two groups, an independent samples t-test was run. The results are depicted in in Table 5.

*Table 5. Results of the Independent Samples T-Test for the Post-Test*

	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	
Post	Equal variances assumed	1.653	.206	2.855	40	.007	1.810	.634	.528	3.091
	Equal variances not assumed			2.855	38.152	.007	1.810	.634	.526	3.093

As shown in Table 5, the Levene's test F value was  $F = 1.653$  with a significance value of (sig. = .206). Due to the fact that it was larger than .05, the top row was used: equal variances assumed. The independent samples t-test table displays t-statistic as ( $t = 2.855$ ) with ( $df = 40$ ) degree of freedom and a p-value (sig. = .007). As it was inferior to .05, one can see that the students who were e-assessed by means of Moodle significantly outperformed the students who were traditionally assessed. Consequently,  $H_{p0}$  was rejected.

## 5. DISCUSSION AND CONCLUSION

On the basis of the results of the independent samples t-tests, the use of a Moodle-based e-assessment has a positive effect on the writing performance of Algerian first-year EFL learners at the English Department at Tlemcen University. This joins the work of Wogu et al. (2014), in which 267 students at Covenant University (Nigeria) took part in their pilot study. These respondents were offered a programme in which Moodle was used for teaching, learning, and evaluation of writing. They carried out a longitudinal study in which they compared students' scores after the introduction of Moodle e-tests. It showed that learners' grades improved as the years went by.

As far as the present study is concerned, we relate this improvement mainly to the way students' paragraphs were corrected and their writing problems dealt with. Indeed, using Moodle enabled every student to be treated individually by giving him/her detailed feedback, remarks, and remedial solutions by posting lessons tailored to needs as well as additional explanations in the classroom. This made it possible to measure the learners'

mastery of the tailored lessons and identify areas of difficulties and misunderstanding as well as the type of mistakes they produced. This brings to the fore the claims of Crisp (2011) and Jordan (2013) regarding the limitations of the traditional methods of assessment such as the insufficiency of direct feedback.

As Ahmed (2018) puts it, the growing number of students per group and the limited hours allocated to teaching the writing module at Algerian universities are some of the reasons behind teachers' inability to provide sufficient assessment, and, thus, feedback. For this reason, the feedback file that we provided on the platform sought to cater to students' individual needs, and propose an adequate remedial solution. We believed that checking it at their convenience would help them reflect on some writing problems they might not have been aware of and might have become fossilised. As explained by Field (2004), and Crystal (2008), some students perpetually overgeneralise grammatical rules without taking into consideration the potential exceptions. Consequently, learning is hindered, and those forms become fixed, hard to overcome, and observable in their writing as a habit. Therefore, the aim behind the feedback file was to raise their awareness of those problems and, eventually, eradicate them. The effect of written corrective feedback on students' writing has been widely discussed in the literature and it is still the subject of debate among scholars (Ferris, 2010; Truscott & Hsu, 2008). Although Ferris (2010), and Kang and Han (2015) have shown its efficiency in improving students' grammatical accuracy, Truscott (1996) does not share their opinion and argues for the opposite. However, he highlights in another study (Truscott & Hsu, 2008) its potential in reducing errors throughout time.

Additionally, we considered that it opened doors for self-assessment. In effect, students were asked to see the type of mistakes they produced on the feedback file, and reflect on them. After that, they had to rewrite their pieces of writing while considering those remarks and the posted lectures which responded to each learner's individual writing needs. By doing so, we intended to push them to make a greater effort and become more independent in their learning. As explained by Cazan and Indreica (2014) and Padayachee et al. (2018), when learners receive immediate feedback, grade, and correction on Moodle, they are able to self-assess themselves, reflect on their mistakes, and, consequently, have more control over their learning.

The findings of the current work support the ones of Lien (2015), Ardiasih et al., (2019), and Adas and Bakir (2013), whose research revealed that the provision of feedback and the exposure to online extra materials through Moodle improved their informants' writing abilities. Adas and Bakir's (2013) study showed that the students who underwent Moodle-based assessment improved their coherence, cohesion, punctuation, spelling, capitalisation, and grammar in comparison with those who did not. They uphold that when the students receive a visual input of their mistakes, their memory on how that word is written increases and, hence, they are not likely to repeat that mistake again over time. In this particular context, the feedback file that was provided to the students served this purpose.

Likewise, Ardiasih et al. (2019) argue that the delivered feedback on Moodle creates a sort of online teacher-student interaction that leads to fruitful results which, in their work, ameliorated the stages of the writing process that learners went through as far as argumentative essays were concerned. Similarly, Bouziane and Zyad (2018), Gava and Dalla Costa

(2018), and Wulandari (2016) found that feedback was one of the reasons behind students' writing improvement. The only difference between these studies and the current one was that it was student-to-student centred rather than teacher-to-student centred.

For instance, in Bouziane and Zyad's (2018) work, the mutual transfer of knowledge between peers within Moodle increased learners' awareness and led to the development of their writing abilities with reference mainly to accuracy and complexity. Additionally, a radical change in its quality was noticed over time. Indeed, it shifted from surface-level comments (grammar and mechanics) to meaning level (coherence, content, and cohesion). By the same token, in Gava and Dalla Costa's (2018) study, learners' writing abilities, vocabulary, as well as their high-order analysis, synthesis, and group-work skills improved due to the knowledge that the students constructed collaboratively within the online social context. In other words, it could be said that Moodle promotes, favours, ameliorates, and eases the delivery, exchange, and the reception of feedback, whether it be teacher-student or between peers. Furthermore, we believe that the feedback favoured online interaction with the students and encouraged them to take part in the learning process. Henceforth, our study confirmed Robertson's (2008) claims on the ability of Moodle to ease communication and Crisp's (2011) and Jordan's (2013) to increase students' involvement.

Although we consider that the improvement was due to the provision of detailed feedback and the online treatment of students' writing problems both online and in the classroom, tailored instruction, and longer exposure to writing classes, we also think that it might be linked to motivational factors. As noted earlier in this paper, the assessment in the writing module at Tlemcen University has always implied a traditional-paper based assessment. Henceforth, we assumed that offering the students an original form of visual input was another way of attracting their attention and, thus, increasing their motivation. As these learners are digital natives, this type of evaluation is more up-to-date and, hence, appropriate for their generation in comparison with paper-based evaluation. The flexibility and interactivity of the platform attract students' attention and boost their motivation to learn.

This brings to the fore the claims of Adas and Bakir (2013) regarding the inadequacies and monotony of the traditional methods of assessment. In the view of Timmis et al. (2016), the overemphasis of those methods on grades and assessment procedures resulted in a lack of creativity in the assessment, and a decrease in learners' motivation. On the contrary, Moodle, according to Robertson (2008), opens room to innovation and creativity in the assessment. For this reason, Adas and Bakir (2013) insist on the importance of providing novelty to learners. According to them, low motivation is one of the reasons behind students' failure in the writing classroom. Therefore, they suggest that using technology, or more specifically Moodle, is the only way of increasing their motivation and attaining successful results. Their study provides proof toward confirming this claim.

In addition to motivational factors, we think that some practical aspects of e-assessment also played a role in student improvement. Indeed, having tailored lessons, documents, books, and paragraphs organised and saved to be consulted at the students' convenience instead of being lost, as can be the case in the traditional printed version, are undeniable practical attributes of the platform. Hence, it could be said that students' improved scores were not solely caused by replacing the paper-based assessment with a technological tool. They were rather about how the numerous features of the platform were fully exploited to perform certain tasks that are sometimes difficult in the classroom. One can conclude that

e-assessment acted in this study as a pedagogical teaching aid. This was an added value to the traditional evaluation, and students' improvement was due to pedagogical, practical, and emotional factors.

Though the above-cited studies demonstrated the effectiveness of the Moodle-based assessment, this is not always the case as there exist some exceptions within the literature that did not obtain the same outcomes. For instance, Donado and Niebles (2018) tried to remedy by means of Moodle courses Sri Lankan students' difficulties in writing academic papers at Colombo University. The results demonstrated the inappropriateness and non-readiness of learners to use such a platform.

Returning to the current study, we believe that e-assessment should be part of the Algerian EFL teachers' instruction within the Department of English at Tlemcen University, because it would:

- Facilitate the design, submission and correction of tests;
- Open the way to improved practice, feedback, teacher-student interaction, self-assessment, autonomous learning, diagnosis, remedial work, and tracking of students' progress;
- Enable students to receive direct feedback on their performance as it gives a clear display of the types of errors they produce;
- Create a better learning environment for learners since technology is an interactive way of learning that pushes students to make more of an effort;
- Overcome some of the limitations that can be found in traditional assessment;
- Allow students to have better control over their mistakes over time;
- Motivate learners to exert greater effort by attracting and involving them in the learning process.

These results provide further support for the shifting to paperless assessment in the future in order to be, to some extent, more up-to-date and in line with contemporary society. Yet, given the current socio-economic situation at some universities, which is reflected by the lack of materials, it goes without saying that moving away from a long-established system to e-assessment will not be done overnight but rather gradually. Such a change is not an easy task. It takes time and requires a lot of effort and investment by the authorities to widen its use. Nevertheless, we strongly believe that through proper adaptation, thorough organisation, increased enthusiasm, collaboration, and devotion by all the people involved in the assessment (teaching and administrative staff and students), its successful deployment will certainly be ensured.

As with every study, the present work was not carried out as originally planned and certain problems were encountered during its completion, problems commonly known as research limitations. One of these limitations was related to the size of the sample. In fact, we intended to gather the data from a much larger sample so that the results could be representative of the target population. However, many learners within the experimental group were not committed to the experiment until the end. We associated students' non-commitment to a lack of interest and passiveness. They also believed that it might be linked to computer anxiety, or what Wogu et al. (2014) refer to as a "phobia" to any Moodle-associated instruction or evaluation. It could also be caused by a reluctance to change and a preference for older habits. Their disinterest, lack of collaboration, as well as time constraints laid behind

the research difficulty. In addition, the study did not address certain variables, such as age and gender. Moreover, it merely focused on assessing writing skills per se while addressing only some of its areas such as grammatical structures, vocabulary, organisation, and content. Finally, the experiment was restricted solely to the English department at Tlemcen University, and lasted for only a few months.

Consequently, we suggest that the experiment could reach a larger audience, and be repeated in the other Algerian universities for generalisation purposes. It could be extended to other advanced levels and be undertaken for a longer period of time. It could also take age as a variable in order to see which age group performs better, and the gender variable to find out whether one gender attains higher scores. It should be taken into account that this study represents the first attempt at the proposed assessment method. Therefore, further research on the topic should be undertaken by future researchers so as to provide wider perspectives on the subject area. For instance, they could focus on the effect of Moodle on specific aspects of writing instead of general writing assessment. Future research could also shift the area of interest to other language skills, such as speaking and reading. Lastly, because the platform includes an array of possibilities for assessment, the effect of features such as the e-portfolio, collaborative learning, wikis, forums, and peer assessment of students' writing, could all be explored.

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