

Online-Problem Based Learning: Bringing New Perspectives in English Writing Classrooms

التعلم الإلكتروني القائم على المشكلة: طرح آفاق جديدة لفصل التعبير الكتابي في أقسام اللغة الانجليزية

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Abstract:

Engaging the students in their writing process becomes recently a focus that is as important as the content we teach. Problem-based Learning (PBL) is one approach that could bridge the gap between the learners and their writing process through enhancing group communication wherein each individual tries to reflect to a given real-world situation, making reasonable decisions to construct a coherent piece of writing. In an attempt to keep in pace with the 21st century requirements, online-PBL (O-PBL) can be used as an alternative approach that aims to develop what is already in existence. Aiming to measure the impact of O-PBL on improving the students writing abilities, a pre-experimental research was conducted with 38 second-year students enrolled at Tébessa university. Results revealed a significant increase in the students' written performances and an eagerness toward managing problems in an online educational space.

Keywords: Group Communication; O-PBL; PBL; Writing.

ملخص البحث

أصبحت فكرة إشراك الطلاب في عملية الكتابة في الآونة الأخيرة نقطة تركيز مهمة مثلها مثل المحتوى الذي نعلمه. بالتالي يعد التعلم القائم على المشكلة منحي مناسب يمكن أن يسد الفجوة بين المتعلمين وعملية الكتابة من خلال تعزيز التواصل الجماعي حيث يفترض أن يتأمل كل فرد في موقف واقعي يمكنه من اتخاذ قرارات معقولة لبناء قطعة كتابية متماسكة. في محاولة لمواكبة متطلبات القرن الحادي والعشرين،

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يمكن استخدام التعلم القائم على المشكلة عبر الإنترنت كمنحى بديل يهدف إلى استكمال وتطوير ما هو موجود. سعياً إلى قياس تأثير هذا الأخير على تحسين قدرات الطلاب الكتابية تم إجراء دراسة بحثية تجريبية مع 38 طالباً في السنة الثانية في جامعة تبسة. كشفت النتائج عن تحسن محسوس في أداء الكتابة للطلاب وعن ميولهم على إدارة الإشكالات في مجال تعليمي قائم على شبكة الإنترنت. الكلمات المفتاحية: التواصل الجماعي ؛ التعلم القائم على المشكلة عبر الإنترنت ؛ التعلم القائم على المشكلة ؛ الكتابة.



I. Introduction

Recently, attention in English as a Foreign Language (henceforth, EFL) teaching and learning context has shifted from teacher-based approach to student-based approach. This shift can be seen in the way teachers are trying to equip their students with some possible learning materials that could help them to be self-reliant and enhance their sense of life-long learning as well. Student-centeredness can be seen in different learning methods, collaborative learning method is among the best examples that falls within the tenets of the students-centered approaches. This latter, can be applied in diverse ways of teaching and learning. PBL is one way to provide support to enhance collaborative skills, it is through it, that learning problems could be collaboratively solved. Those problems often come within a real-world framework as a context for learning (Cheaney & Ingebritsen, 2006). What matters most, here, is the flexibility of this model in making it possible to be applied across “different subjects and disciplines” (Savin-Baden, 2000, p. 3), in the sense that it can be applied in all aspects of language learning in general, and in writing classrooms in particular. So, as the writing skill is communicative in nature, collaborative work in writing classrooms seems to be central as it focuses more on the cyclical nature of such skill. Owing to the fact that in most writing classrooms, learning through a PBL approach often causes some temporal and physical problems that is the reason why, teachers and students alike seem to be reluctant toward learning and teaching through such model. So, taking into account those constraints, we seem to be urged to think about some alternatives that could overcome the existed problems. As a way to adequately respond to those constraints, the PBL flexibility enables the

teachers to go beyond the conventional physical context (e.g., classrooms) so that the different in-class activities can possibly be achieved in an online mode of communication leading to the occurrence of the so-called O-PBL which, in fact, does not give too much thought to both; the “*here*” and the “*now*”.

So, as this changing time of globalization has increased the abilities of distant communication, and as the integration of any forms of that distant communication remains to be a trend that has been recently put into practice in language classrooms, it was therefore, felt important to make a valid conclusion to confirm the results of previous studies concerning the potential use of O-PBL in the field of language learning, most precisely in EFL writing classrooms. Accordingly, the main aim of the present study was to see the effect of O-PBL on developing second-year university students’ writing level in terms of vocabulary, organization, grammar, and mechanics. Given to this, the following question has been addressed:

1. Does the experience of learning through O-PBL help the students to develop their writing abilities with due regard to vocabulary, organization, grammar, and mechanics?

Building on the above stated research question, this study states the following alternative hypothesis (H1) along with its parallel null hypothesis (H0).

1. H1: There will be a significant difference in the students’ writing before and after the integration of O-PBL in terms of vocabulary, organization, grammar, and mechanics.
2. H0: There will be no significant difference in the students’ writing before and after the integration of O-PBL in terms of vocabulary, organization, grammar, and mechanics.

II- Literature Review

II-1. Writing

As it has already been mentioned, writing as a major component of any language learning, has a collaborative nature. This nature lies in giving focus to the purpose of any piece of writing and to the importance of the intended audience (Kern, 2000). So, having a readership in mind is a social action itself. In practical terms, it is the act of interacting with an audience that gives birth to meaning and even influence quality writing; that is the reason why teachers have to drive their students to work collaboratively in order to negotiate meaning. In this respect, Bruffee (1984 p. 642) has claimed that;

... our task must involve engaging students in conversation among themselves at as many points in [...] writing [...] process as possible and that we should contrive to ensure that students' conversation about what they [...] write is similar in as many ways as possible to the way we would like them eventually to [...] write. The way they talk with each other determines the way they will think and the way they will write

That quote has emphasized the importance of involving the students in their writing process by managing tasks that can help them to negotiate their abstract thoughts before putting them on papers.

II.2. Problem Based Learning (PBL)

Through the course of time, the concept of learning through managing problems has been gradually introduced in the field of education. Generally speaking, PBL is based on the belief of the "want to know" as the students will be stimulated to solve those problems which are based on reality (Harper-Marinick, 2001; Ngeow & Kong, 2001; Savin-Baden, 2007). This method of learning takes into consideration "the challenge of making students' thinking visible" (Tan, 2004, p. 7). It is through interaction and team work that students would collaboratively demonstrate their ideas in order to build meaningful learning outcomes. So, being a collaborative approach allows all the classroom members to be involved in team work; including weak, intermediate and excellent students, it is then an "ideal for heterogeneous classrooms where students with mixed abilities can pool their talents collaboratively to invent a solution" (Delisle, 1997, p. 7). From a cognitive standpoint, PBL embraces the use of metacognition and self regulation (Tan, 2004) as the act of managing problems requires a deep understanding of the situation at hand, which itself requires a number of cognitive processes and mental activities (Tan, 2003). Certainly, PBL works within five cognitive principles, individuals; therefore, can learn with such model through (1) having some prior knowledge about the given topic as it can determine the amount of information that can be proceeded, (2) the activation of that prior knowledge by the use of special cues within the context under study, (3) the way in which that knowledge is organized must be related to the given situation, (4) the ability to activate the prior knowledge in the long term memory, and finally (5) the elaboration of that prior knowledge in a collaborative discussion (Schmitt, 1993). Given to the previous principles, it can be said that PBL has a direct link with "the

realistic situation” (Loyens, Kirschner, & Paas, 2011, p. 6) and the already existed knowledge. In this case, one could say that within the principles of the PBL model there is an obvious shift in the three dimensions of language learning (the teacher, the students, and the content to be taught). The following figure better demonstrates that shift,

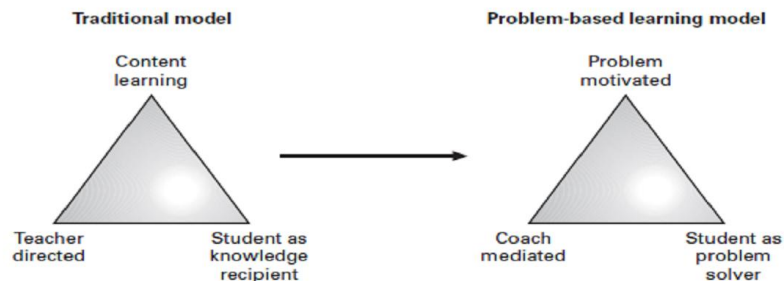


Figure 1. A comparison between the TM and PBL-M
The source. Tan, 2003, p. 12

It can be seen that in the Traditional Model (TM) of teaching the two major focus are both the teacher and the content learning, while the learner is just a knowledge receiver or a “spoon feeding figure”. However, in a PBL-Model (PBL-M) the major focus is the student him/herself being the only problem solver, wherein the teacher becomes just a “guide on the side” rather than a “sage on the stage”, whereas the content takes the shape of a problem-based tenor. In this model, the role of the teachers occurs at the very beginning by providing the students with the necessary guidance whenever it is needed until the students gain “full independence” (Barrows & Tamblyn, 1980, p. 9).

II.3. Online-Problem Based Learning (O-PBL)

Since we are living in a digitalized world, we need to redefine the way of teaching and learning in order to keep up with the intended outcome of the 21st century. As a point of fact, the concept of problem solving can be used in an online-based environment. The idea of O-PBL is quite simple, so what is used to be conducted in a face-to-face mode is now going to be done in a Virtual Learning Environment (VLE) through the use of the synchronous instant-messaging forums which are under the umbrella of Computer-Mediated Communication (CMC). Before the discussion moves on, a small account should be given to CMC. This mode of communication is concerned with any human to human interaction that happens in an online mode of communication through electronic devices (Herring, 1996), either

asynchronously (at a different point in time) where the individual need not to be logged simultaneously, or synchronously (in the same period) where the individuals need to be logged simultaneously (Mills, 2006). So, managing electronic communication for the sake of conducting some PBL activities could “empower students to engage in electronic collaboration” (Watson, 2004, p. 193). In such a way, O-PBL offers more (a) flexibility to the students, (b) enhances both the pedagogical and the technological experience of students, (c) works well for interprofessional learning (d) integrate diverse learning resources, (e) promoting collaboration beyond the classroom borders, (f) reduces the students’ isolation and provide more support, and (g) offers the students the choice of when, what and how to learn (Savin-Baden, 2007).

So, regarding the previous small account concerning PBL and O-PBL, a clear-cut line has to be presented between both of them. One major difference between both concepts lies in the way the group members are interacting with each other. In the traditional PBL model, the students are obliged to meet in a face-to-face mode of learning either in or outside class time, whereas in an O-PBL model, the interaction takes place in an electronic mode either synchronously or asynchronously regardless the “when” and the “where”. The synchronicity calls, primarily, “for spontaneity and give-and-take between group members with immediate feedback” (Cheaney & Ingebritsen, 2006, p. 9), while the asynchronicity “provides more time for the individual research required for to a student to fulfill his or her role in the group, and also stimulates reflection on the relevant issues the group is discussing” (ibid.). Another concern has to do with the role of the teacher. In the traditional PBL, the teacher acts as a monitor that guides the situation from distance without being fully dominating the group, whereas his role becomes much more harder in an electronic sphere as the process becomes more difficult and time-consuming. Another consideration must be directed to the student him/herself, in an O-PBL environment the student requires a great amount of intrinsic motivation as the context of learning is totally different. Students requires large amount of motivation because once at home they are not going to exclusively focus on their learning but rather on other personal issues (house-work, family, entertainment and so many other occupations) (Cheaney & Ingebritsen 2006).

III. Research Methodology Design

III.1. The Choice of the Method

As the researchers in the present study are interested to measure the impact of O-PBL on developing the students' writing abilities, it was seen appropriate to conduct an experiment to reach such an aim. However, since within the domain of social sciences, it is almost difficult to conduct a true experimentation due to the human complexities (Hatch & Farhady, 1982), a quasi-experimental design seems to best fit both our objective and the nature of our context. Thereby, we have opted for the one-group pretest–post-test. Within that design, we have measured a group of students on the dependent variable (writing) before introducing the experimental manipulation (O-PBL). Following that manipulation we have measured again the group performances in order to make an account for differences between the pre-test and the post-test scores (Cohen, Manion, & Morrison, 2018).

III.2. Participants

The study was comprised of 38 students enrolled in Cheikh Larbi Tebessa university at the department of Letters and English language during the academic year 2019/2020. The subjects of this study were chosen conveniently because the convenient sampling technique seems to be the most appropriate one as the participants were already available (Best & Khan, 2006). Their age varies from 18 to 28 years old. They seem to share the same academic background as they have taken the same written expression course during their first year. Technologically speaking, the participants have been identified as having advanced technological skills toward the use of Instant Messaging (Facebook Messenger). Broadly speaking, students with that age are generally belonging to the digital native generation. A generation of young people who have been grown up in the technological era (Dingli & Seychell, 2015). As such, we could expect satisfactory outcomes in further steps of the present research.

III.3. Procedures

Overall, the suggested treatment lasted for six weeks in general. The first two weeks (6 hours) have been mainly devoted for the training on PBL, and the remaining weeks (four weeks, that is, 12 hours) have been dedicated to the intervention. In those two weeks, the researchers have raised the students' awareness toward writing within a PBL model. Showing them the difference between writing under the umbrella of that model and writing under the conventional teaching model. The rationale behind this, was to make the students realize that their learning would be more practical if they focus more on developing

different skills (teamwork and problem-solving skills as a case in point) that could help them as future citizens to hold out in the present interconnected world. Prior to the intervention, being ourselves the investigators and the appliers of the intervention, we have created seven groups in the Facebook Messenger (see figure 2 below) so that every thing would be under our control.

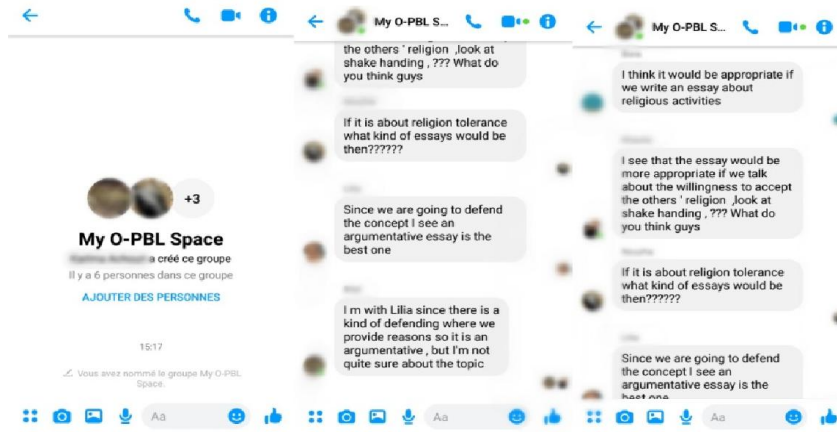


Figure 2. Sample of a Facebook Messenger Group

As a first step toward the intervention, we have followed Burch (2000) cycle of learning which consists of four main stages; the problem, initial analysis, research, and reporting. As far as the problem is concerned, it has been presented in a form of pictures (see figure 3 and 4) upon which the students wrestle to identify the target topic (the intended writing assignment).

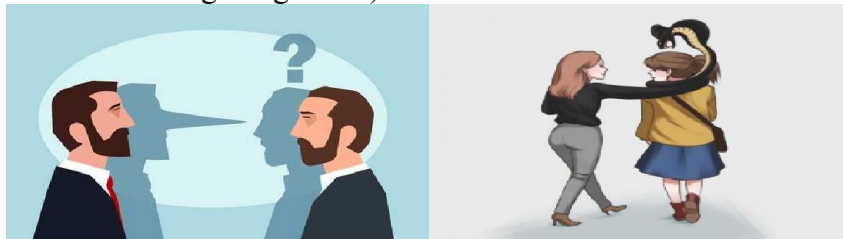


Figure 3. Topic one



Figure 4. Topic two

So, once they determine what will be discussed, in terms of deciphering and interpreting the intended topic behind the picture, they “actively participate in their learning” (ibid.). As the problem stage seems to be very critical, several characteristics have been taken into account to ensure sufficient scaffolding for effective brainstorming. Those characteristics can be narrowed down into five main dimensions as raised by Loyens, Kirschner, and Paas (2011) who have claimed that problems in a PBL activity “must build on prior knowledge, elicit discussion, stimulate SDL (Self-direct Learning), encourage knowledge integration and transfer, and be relevant for the students’ future profession” (p. 8). Actually, when prior knowledge is minimal, nothing could be expected from the students, hence the brainstorming would be difficult, if not impossible. The students prior knowledge can only be retrieved when the problem can elicit discussion through the use of specific cues. Accordingly, in order to elicit discussions that could further activate the students SDL, ill-structured problems (a problem that does not contain sufficient information to solve it or it cannot be solved at all) were often used in order to stimulate the formulation of the learning issues, because within such kind of problems, various solutions can be generated (ibid.). We have been also careful to provide problems that should help the students make a link between what they have already acquired as knowledge and the given situation (the available knowledge). Problems have been relevant as well to their future profession (ibid.).

With the second stage, or the initial analysis stage, the students have been supposed to answer three main questions; “*what is known*”, “*what is needed*”, and “*what should be done*”. What matters most here is the collaborative way through which the students have constructively explored and answered the aforementioned questions. By answering the first question, the students have activated their prior knowledge by the help of the special cues that have been presented in the provided

pictures. For example, the metaphorical long nose which represents “lying” has been used as a special cue in that case, and the cartoon of *Pinocchio* as a case in point has been supposed to be the students’ prior knowledge. So, these two concepts have been considered to be the starting points upon which the students have tried to convert “the hidden message” (the problem) into a meaningful text.

Having collecting enough information concerning the subject matter, the second question tends to target what type of essay writing is needed to be adopted in the given situation (descriptive, narrative, expository, or argumentative writing). Answering the last question; however, has helped the group members to make a preliminary outline to their essays as each one of them has been assigned to write a part of the essay (introductory paragraph, the body, or the concluding paragraph). After having collaboratively answering the three questions, the students have started to perform what they have previously agreed upon in terms of outline. Reaching this stage does not mark an end to the problem solving activity, but rather, it was sometimes the beginning of a new identification to some issues. It is, with this stage, that the students “come to recognize researching as a skill, as a means to an end of managing problems competently. In this way students teach themselves” (ibid.). As a last stage in the cycle, the students have been able to solve the given problem by reporting their works with their own words in a form of a coherent essay.

As far as grouping is concerned, the researchers have grouped the students heterogeneously, in that, every single group was composed of a number of students with varied levels; weak, intermediate, and advanced ones. We have intended to create groups of five and six students as groups with that number tend to be more controllable (Brown, 2000), and vital to ensure the effectiveness of the PBL strategy in an online mode (Savin-Baden, 2007). From an intellectual perspective, grouping with due regard to that heterogeneity would help lower-level students to acquire some knowledge from their higher-level peers whose level will be enhanced as well from the peer-to-peer discussion. Grouping heterogeneously, then, can “maximize the breadth of experiences and academic skills available to the group” (Cheaney & Ingebristen, 2006, p. 2). Group learning can also help the students to “develop skills at [...] organizing, working as a team, negotiating, and critiquing”.

Before the discussion moves on, it is worth mentioning that since the nature of the current study has been undertaken within a web-based sphere, some minor modification has been made in order to adjust the PBL model with the objective of the current study. So, concerning the training stage, it has been achieved in a face-to-face environment as the concept of O-PBL shares the same fundamental with the traditional PBL; providing only the necessary technological skills. So, even when we have aimed to digitalize the PBL model, we have tried to keep working under the same principles so as to remain consistent with the prescribed framework to obtain the same success (Pluta, Richards, & Mutnick, 2013).

It is worth mentioning that our role as instructors during that task becomes electronic-moderators (henceforth; e-moderators), wherein we have been directing the students' learning in an online mode of communication. We have tried to intervene whenever necessary to help the student not to deviate from the intended objective of the activity.

III. 4. Instruments

Trying to reaching the objectives of the present endeavor, answering the addressed question, and confirming the formulated hypotheses, we have used two main data instrumentations, a pre-test and a post test which have been set just before and right after the manipulation of the suggested treatment. Following the post-test, a post-treatment interview has been conducted with five students to elicit specific points concerning their perceptions about using O-PBL. It should be noted as well that prior to the intervention, an interview has been conducted with the participants to identify the writing aspects that the students consider as the most difficult in writing. As far as the post-treatment interview is concerned, a focus group interview has been used as a supplementary mean to help us getting full insights and understanding the students' online experience.

So, before the discussion carried on, some points concerning our choice of the focus group interview and the number of respondents as well need to be clarified. The rationale behind our choice has been related to the nature of the current study itself, since our study has been implemented within a collaborative tenets, it would be consistent if we conduct a focus group interview as such kind of interviews is usually achieved through a group discussion. As far as the size of the group is concerned, we have conducted it with just five students, because we have been convinced by the fact that groups should be small enough so

that everyone would have an opportunity to share his/her insight and quite large to obtain a diversity of perceptions (Krueger & Casey, 2015); that is why groups of five students have been seen workable.

In a nutshell, this research paper has followed a mixed-methods approach, which is basically used to address "... both the 'what' (numerical and quantitative data) and 'how or why' (qualitative) types of research questions. This is particularly important if the intention of the researcher is really to understand different explanations of outcomes" (Cohen et al., 2018, p. 33), and since the quantitative data have been collected first, and further clarified with qualitative data, we can say that this study was purely explanatory (Fraenkel, Wallen, & Hyun 2012).

IV. Results and discussion

Before we go any further, it should be noted that the students' writing essays have been corrected with due regard to the four writing components (vocabulary, organization, grammar, and mechanics) where each one of them has been attributed to the mark of five, hence, the scoring was out of twenty.

IV.1 Quantitative Data Analysis

Quantitatively speaking, data obtained from both tests (pre-test and post-test) were interpreted through calculating the two mean scores (M), the standard deviation (SD), and the paired sample t-test. The calculation has been made by the help of the Statistical Package for Social Sciences (SPSS) version. 23. It should be recalled that, since each participant has been tested before and after the implementation of the suggested intervention, we have then two related samples of scores. In this case, a paired sample t-test has been considered to be the most appropriate statistical test (Gray & Kinnear, 2012).

After we have obtained the scores of both tests (pre and post-test), a comparison between the two mean scores has been made (see table 1). Table 1.

Difference in Means Scores between the Pre-test and the Post-test

	Mean	N	Std. Deviation	Std. Error Mean
Pre-test	9.2737	38	.79438	.12887
Post-test	12.0066	38	1.41956	.23028

Results have revealed that the mean score of the pre-test was 9.2737, and that of the post-test was 12.0066 with a standard deviation equal 0.79438 and 1.41956 respectively. The difference between the two mean scores equal 2.7329 which indicates a noticeable significant statistical variation in the students' achievement in both conditions, that is, before and after treatment. This initial result could ensure to a far extent the efficacy of the planned strategy in enhancing the four writing aspects (vocabulary, content, grammar, and mechanics).

To further confirm the obtained result, a paired sample t-test has been ran (see below). From table 2, we can see that the *t value*= -9.229 which correlates to a degree of freedom *df*=37 which has been significant at $\alpha = .000$ which is lower than the *p-value* $\alpha = 0.05$. It should be reminded that in social sciences the *p value* (α) is set at 0.05. This latter, indicates that there is 95% probability that the difference between the two mean scores of the same group did not occur by chance. So, since the *Sig. value* is lower than the *p-value*, we can safely say that the students' writing achievements in the four writing aspects have significantly improved after the treatment application.

Table 2.

Paired Sample Test

	Paired Differences						df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
re-test	2.28289	1.52476	.24735	1.781	2.784	37	.000	
post-test				9.22	0.72			

To get a detailed assessment toward the four measured components, we have calculated the mean score of each component individually before and after the intervention to see if the suggested treatment has led to a significant statistical improvement in every single area (see below).

Table 3.

Mean Scores of the Four Writing Aspects in The Pre-test and the Post-Test

		Mean	N	S td. Deviation	S td. Error Mean
Vocabulary	Pre-test	2,3750	38	,64134	,10404
	Post-test	3,1513	38	,65641	,10648
Organization	Pre-test	2,3882	38	,50570	,08204
	Post-test	3,3684	38	,71361	,11576
Grammar	Pre-test	2,3684	38	,50248	,08151
	Post-test	2,9605	38	,60551	,09823
Mechanics	Pre-test	2,5921	38	,71994	,11679
	Post-test	2,5263	38	,70899	,11501

So, as it can be seen from table 3, the mean score of vocabulary in the pre-test was $\bar{x} = 2,3750$ while that of the post-test was $\bar{x} = 3,1513$. Concerning organization, its mean score in the pre-test was $\bar{x} = 2,3882$, while in the post-test was $\bar{x} = 3,3684$. The Grammatical aspect had a mean score equal $\bar{x} = 2,3684$ in the pre-test and $\bar{x} = 2,9605$ in the post-test. The mean score of the mechanical skills in the pre-test was $\bar{x} = 2,5921$, while in the post-test was $\bar{x} = 2,5263$. Remarkably, there was a slight improvement in the three first components which indicated the success of the O-PBL in enhancing the students writing abilities. Whereas, in the last component (mechanics) we have noticed a modest regression in the students' performances, a setback with a difference of (-0.0658).

The obtained data from table 3, can be graphically interpreted to better display the difference between the mean scores of the four above-mentioned writing criteria. So, the situation is better presented in figure 5,

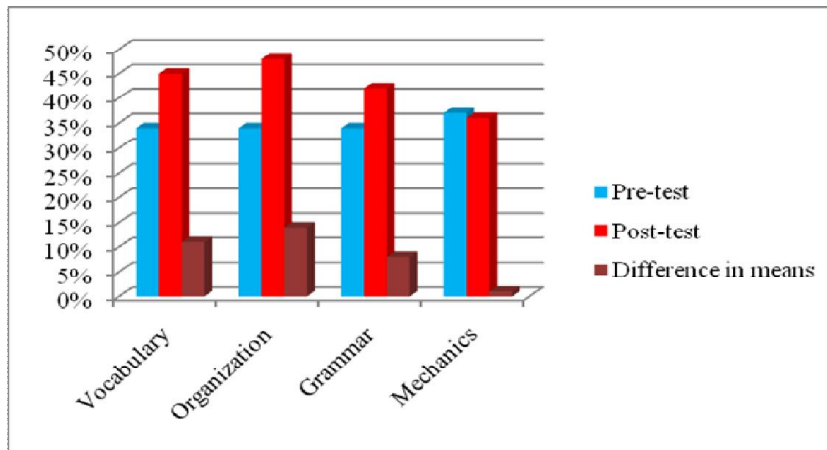


Figure 5. Comparative Analysis between the Four Writing Components

Generally speaking, figure 5 clearly showed an apparent difference between the students' achievements in both the pre and the post-test. As far as the vocabulary aspect is concerned, we can see that the students scores in the post-test were higher than those recorded in the pre-test with a difference in means equal to 11% which seems to be a significant percentage. As for the organizational skills, the students appear to record higher achievements in the post-test compared to to the pre-test scores with 14% difference in means which is absolutely a considerable difference. The same thing has been found with grammar, where a meaningful difference between means estimated with 8% has been documented. Till this point in research, we can say that the suggested treatment has positively affected the students' performances in the aforementioned areas. Coming to the mechanical skill achievements, yet there was a very small regression, but we still could say that the students' record appeared to remain stable as the difference in means was equal to 0.0658 which itself does not indicate too much diverengence in their written performances. To us, the obtained findings might be attributed to the short period of time allotted to the intervention, that is, within that short span of time, students seemed unable to raise their level of achievement concerning this problematic area. For that, we can assume that if much time was given to the implementation of such strategy, more satisfactory outcomes will be recorded. On the basis of the above-mentioned data, it might be concluded that, the obtained results clearly denoted that the significance difference has not been attributed to chance or other extraneous factors but just to the applied treatment.

The statistical analysis of the students' pre-test and post-test has been taken as an answer to the addressed research question stated earlier: "Does the experience of learning through O-PBL help the students to develop their writing abilities with due regard to vocabulary, organization, grammar, and mechanics?"

So, since the study findings have revealed a significant difference at the significance level less than $\alpha < 0.05$ in the mean scores of the pre-test and the post-test of the target group after the involvement in an O-PBL writing experience. Accordingly, we can safely say that our question has been positively answered.

Having in mind the afore-stated statistical findings, we have been able to say that the suggested treatment has proved its efficiency in the writing classroom. So, the fact that we have obtained a significant difference between the two mean scores (before and after treatment) has allowed us to confirm the H1 and reject the H0. The H1 that has suggested that there will be a statistical difference between the two mean scores after treatment, while the H0 has indicated that there will be no difference so far.

IV.2. Qualitative Data Analysis

Qualitatively speaking, the researchers have conducted the interview to further validate the quantitative data. So, owing to the fact that this kind of 'reporting' has an "introspective" nature (Wallace, 1998, p. 37), in this regard, the participants have been supposed to report data about themselves. In order to interpret the gathered materials, this study has used the coding approach as a process through which data have been broken into small units, categorized altogether and interpreted under three main dimensions:

a. Common Drawbacks of PBL

Given to the fact that the traditional PBL had different drawbacks that have been raised by the participants; that is the reason why they have perceived O-PBL in a positive manner. According to them, this new way of learning has overcome to some extent these drawbacks. Due to the fact that these activities are naturally time consuming. Time has been classified among the major obstacle. Most of the interviewees have reported that discussing their writing in the classroom has never been sufficient, they have been obliged at each time to extend their meetings outside the classroom official time in order to carry on what they have started. Doing so, has led at each time to another problem which was the non-availability of some peers who usually "escape" (as

they have reported) from such synchronous face-to-face conversational activities, either because of some occupations or because they are reluctant toward such kind of social activities because of some psychological traits (shyness, for example) or even to their negligence. As opposed to PBL, O-PBL has been seen as a remedial way through which the participants had this opportunity to network together depending on their personal schedule. So, within that model they were 'flexible', they did not use this term, but they have referred to the fact of being able to manage their projects according to their personal, academic, or professional occupations. From this small account, we can say that O-PBL has bridged some gaps left by the traditional PBL.

b. Digital-based PBL

Under this dimension, the interviewees have reported that with the internet connectivity, their writing assignments has been productively achieved by a simple tap from their keyboards without having to physically attend. They have claimed as well, that with the help of their Facebook-Messenger group, they have been able to network together and to seek access to information in a synchronous mode. They have further added that within a digital dimension, whomever had an internet connectivity can have an access to the group community. So, we can say, now, that the divergence of this digitalized world have broken the geographical and the temporal boundaries. No more thought are going to be given to the physical space and to the temporal constraints.

c. Comfortable Learning Space

Our interviewees have reported that the context of Web 2.0 technology, has offered them with a comfortable learning environment through which they have been allowed to be engaged in less threatening discussions. It has also increased their learning productivity; wherein they have become more "talkative" as opposed to face-to-face discussions through which they have been used to remain silent and even hesitant just in fear of being interrupted by that kind of classmates who usually tend to compete for speaking right. The following excerpt better clarifies what has been reported,

[Excerpt, student 3]:

"....talking in Messenger...helped me a lot in being eager to share my ideas with my peers than I usually did, no one could see me, no one could interact me just because I had not properly articulated some words... I had more time to search for the appropriate vocabulary, I had

more time to deeply think about what I'm going to say... Messenger conversation has also helped us to eliminate the turn-taking way of discussing with which I actually felt uncomfortable".

Given to what has been said, we can say that the Facebook Messenger group has eliminated some hindrances that usually appear in a face-to-face PBL such as; the "when", the "where", and even the "how" which stands for the way in which the students achieve their learning debate.

Considering the qualitative data, we can say that most students have been uncomfortable with the traditional classroom discussion which most of the time leads to unwelcomed debates because of the students' focus over the surface features (the correct pronunciation as a case in point) and neglect the main focus (e.g., the peer-to-peer discussion).

V. Conclusion

The findings of this study showed how the experience of O-PBL has led to an increase in the students' scores and how it has affected their perceptions as well. From the obtained data, the researchers have identified several challenges that usually appear in a face-to-face PBL. These challenges have been covered with the concept of learning through managing problems in an online mode of learning. The aforementioned challenges have mainly to do with attendance, time, and scheduling issues. Given to the fact that many educationalists are always defending old ways of teaching in general and in managing problems in particular, it has been seen appropriate if we put forward some practical recommendations that could be taken into account in further studies by future researchers and teachers.

Since this changing time of globalization has increased our need in creating a suitable atmosphere, our responsibility, as teachers has been increased as well. So, trying to adjust the teaching process within the 21st century framework, demands not only that we acknowledge recent instructional practices, but also to have that ability to control some extraneous variables that might contribute either in the failure or the success of the intended concept. What we want to say, in this case, is that before engaging the students in an O-PBL activity, teachers have to consider some important factors including the learners' dimensions, preferences, aims, and purposes of the pedagogical activity (Fitzpatrick & Donnelly, 2010). As a practical matter, working through online-based approaches require a deep understanding of the educational settings.

Teachers, therefore, are required to take into account all the previous factors in order to ensure to some extent the success of such mode of learning. Taking the learners' preferences as an example, implies two major dimensions; the learners' familiarity with the suggested online platform and their eagerness toward the intended strategy principles (e.g., collaborative tasks). As far as the first dimension is concerned, that is, the students' familiarity with the proposed online forum, Lee (2009) has claimed that "it is essential to provide students with sufficient training, so that they become comfortable with new tools" (p.437). So, making sure that the students are competent users of the target application, could facilitate the designed plan, that is, there would be no need to provide them with some training about how to appropriately use the suggested online tool. In this case, teachers would gain extra time that might be invested in other steps. Concerning the second dimension, teachers need to raise the students' awareness toward the importance of being involved in a social environment of learning by identifying the possible skills that could be acquired. In the same respect, teachers have to appropriately prepare the students by explaining the notion of collaboration in an online-based environment in order to avoid the hostile debates that usually appear in such social activities. They should emphasize some appropriate ways of discussions "... such as questioning each other, sharing resources, co-operating rather than competing, learning to value teamwork, accepting diverse perspectives and enjoying the possibility of disagreement and conflict as a means to team and individual learning" (Savin-Baden, 2007, p. 56).

With regard to the research method, it has been felt the urge, to acknowledge some limitations that have been recognized during the realization of this paper. First and foremost, we have not been able to randomly assign two groups of individuals to participate in the study due to some administrative restrictions and because have worked under the umbrella of the quasi-experimental design; within which it has been impossible to create new groups while there have been intact groups (already available groups). We have been obliged as well to work with that small sample size; that is the reason why the generalisability of our findings has been limited to some extent. Perhaps, further research should be undertaken to explore the suggested treatment by using a more convinced sampling technique and a larger sample size to yield more conclusive results.

Time shortage have been also identified as a major problem. We have been restricted by this latter in early stages of the research, most precisely during the training process. In fact, six hours seem not to be sufficient in our context where English is not the students' first language since in this context the students are in need of careful guidelines and directions. Yet, the subjects under investigation have already dealt with this strategy in previous learning stages; however, those few hours have remained not to be enough to validate the reliability and the authenticity of the obtained data. In fact, at that time, it was impossible to us to schedule extra sessions to make some training tutorials because of our workload and the learners' daily life commitments. More researches are then needed to account for the aforementioned constraint.

The researchers have been also unable to conduct this study for a longer period of time because at this stage of learning (second year) students have been supposed to deal with essay writing in the second semester which is much shorter than the first one. Further researchers; therefore, are invited to usefully explore the proposed intervention in a longer period of time (e.g., the first semester of the third year).

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