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***The effect of teacher's presence in collaborative  
online writing on EFL writing skills, reading  
comprehension and learner autonomy***

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## **Abstract**

This study aimed at developing EFL students' writing skills, by examining the effect of teacher intervention in online collaborative writing on students' writing performance, reading comprehension, and learner autonomy. The study sample comprised 98 fresh female students enrolled at the College of Education, Kuwait University, who were of different majors. The students were divided into three groups; two experimental groups and a control one. Both treatment groups were engaged in online collaborative writing projects, utilizing google documents (GD) program. However, the first group was exposed to high teacher presence intervention (HTP), whereas the second group was exposed to low teacher presence intervention (LTP). The treatment spanned over a period of 13 weeks. The tools incorporated in the study included a writing test, a reading comprehension test, and a learner autonomy questionnaire. Results showed that both groups improved in writing, reading comprehension and learner autonomy, compared to the control group. Nonetheless, the (HTP) outperformed the (LTP) in most writing skills. As far as reading comprehension and learner autonomy are concerned, no differences could be detected between both treatment groups. The study sustained the conclusion that high teacher presence in online contexts is paramount in improving students' writing skills, especially for those whose language proficiency is not very high. It was suggested that teacher high presence facilitated students' interaction, collaboration and reciprocal learning process, without undermining their autonomy.

**Key words:** teacher-learner-collaborative online writing-EFL writing skills.

## أثر تدخل المعلم في سياق الكتابة التعاونية الافتراضية على مهارات الكتابة والفهم القرائي واستقلالية المتعلم في اللغة الإنجليزية كلغة أجنبية

### ملخص

هدفت الدراسة إلى تنمية مهارات الكتابة باللغة الإنجليزية كلغة أجنبية، من خلال دراسة تأثير تدخل المعلم في سياق الكتابة التعاونية الافتراضية على مهارات الكتابة، ومهارات الفهم القرائي واستقلالية المتعلم. وقد اشتملت عينة الدراسة على ٩٨ طالبة من الطالبات المستجديات في كلية التربية، جامعة الكويت، تم تقسيمهن إلى ثلاث مجموعات: مجموعتين تجريبيتين، ومجموعة ضابطة. وقد انخرطت كلتا المجموعتين التجريبيتين في مشاريع للكتابة التعاونية، باستخدام برنامج وثائق جوجل، بيد أن المجموعة الأولى تعرضت لتدخل المعلم بشكل مكثف، بينما تعرضت المجموعة الثانية لتدخل أقل كثافة من قبل المعلم، واستمرت التجربة لمدة ١٣ أسبوع. وقد تم توظيف مجموعة من الأدوات، شملت اختبارا في الكتابة، واختبارا في الفهم القرائي، ومقياسا في استقلالية المتعلم. وقد أظهرت النتائج أن هناك تحسنا واضح لدى طالبات المجموعتين التجريبيتين في مهارات الكتابة، ومهارات الفهم القرائي، واستقلالية المتعلم، مقارنة بالمجموعة الضابطة، إلا أن المجموعة التي تعرضت لتدخل مكثف من قبل المعلم تحسن أدائها بشكل يفوق المجموعة الأخرى، التي لم يتدخل فيها المعلم بالقدر نفسه. وقد خلصت الدراسة إلى نتيجة مفادها أن تدخل المعلم في السياقات الافتراضية يعد عاملا جوهريا في تحسين مهارات الكتابة لدى الطلبة، وبخاصة ذوي الكفاءة اللغوية المنخفضة. وقد أوصت الدراسة بضرورة تواجدهم بشكل مكثف في سياق الكتابة التعاونية الافتراضية في اللغة الإنجليزية كلغة أجنبية، لما يؤديه من دور فاعل في تيسير تفاعلات الطلبة وتعاونهم وتعلمهم بشكل متبادل، دون تفويض قدرتهم على التعلم بشكل مستقل.

**الكلمات المفتاحية:** المعلم-المتعلم-الكتابة التعاونية-مهارات الكتابة-اللغة الانجليزية.

## **Introduction**

Nowadays, easy access to the internet has facilitated online interaction to people all over the world, and has led to the emergence of unconventional ways of communication that have penetrated every aspect of our daily life. This implies that educational systems have to face the huge challenge of preparing students for an entirely different future, and equipping them with new competencies to deal with the 21st century challenges. One of the most important skills students need to acquire is the ability to communicate and collaborate online, either verbally or in written form, using digital media (Zheng, et al., 2018). English online written communication is routinely demanded in most local and international job markets. Hence, EFL writing instruction must evolve to help students achieve this vital competency and prepare them for a totally digitally driven world. In particular, it needs to equip them with the skills and strategies not just to produce traditional texts using computer technology, but also to indulge in written communicative processes similar to those they will encounter in their future life.

Online collaborative writing is one of the methods that can help EFL learners actively practice writing skills in a digital context, and experience an authentic sense of audience, usually missing in traditional writing classrooms (Ciftci and Kocoglu, 2012; Grami, 2012). It promotes cooperation among students and decreases the stress which they might feel as a result of individual exposure to teacher's criticism and judgement. Additionally, it encourages students to engage in peer revision and peer assessment in a democratic setting, with each one feels equally responsible for jointly producing a final product. Moreover, despite the seemingly limited role the teacher plays in this context, online collaborative writing gives the teacher an unparalleled chance to keep students' whole writing process under their close scrutiny (Warnock, 2015, p. 168), and so it can act as a sound pedagogical device that assists in developing students' written proficiency in an indirect manner (Yang, 2017).

However, unlike traditional individual writing instruction, internet-mediated collaborative writing requires an ability to master a set of new competencies by both the teacher and the students. In particular, beside the technical knowledge, it necessitates the adoption by students of an alternative mindset that supports shared work and mutual responsibility, which they might not be familiar with (Blau & Caspi,

2009). Furthermore, it puts a lot of burden on the teacher, who has to grapple with the tasks of monitoring and revising students' online work, detecting the quality and quantity of their collaboration, as well as distinguishing and evaluating each student's individual contribution and progress.

Although some research has taken place to analyze students' use of online tools in collaborative writing (Apple, Reis-Bergan, Adams & Saunders 2011; Blau and Caspi, 2009; Kessler, Bikowski, and Boggs', 2012; Liang, 2010, Zhu, 2012...etc.), still extensive investigation is needed to understand the nuances of using these technologies in EFL contexts in order to help the teacher and students understand their roles, and get adapted to this virtual environment with all its intricacies.

### **Statement of the problem**

Previous research tackling writing instruction in EFL contexts, especially in the Arab context, has revealed that writing is not given enough time or due attention. Writing tasks are always assigned to students as homework, which implies that teachers can only deal with the product, and can barely observe the writing process as it unfolds, so as to provide students with needed support (Ahmed, 2016; Helal, 2003, ...etc.). Hence, when EFL students' written work is examined, it becomes obvious that they commit a large number of grammatical, organizational and lexical errors (Khan, & Bontha, 2015; Kingen, 2016 and Torky, 2010...etc.).

This was also confirmed by the researcher's experience, as well as a pilot study conducted to determine the methods employed to teach EFL writing at the College of Education, Kuwait University, using a questionnaire administered to 11 EFL instructors and university professors. Results attested to the fact that most university students find difficulty in expressing their thoughts in writing. Moreover, most EFL instructors recognize form and mechanics as their first priority in teaching and evaluating writing, so they tend to neglect content and organization. In addition, teachers have negative attitudes towards using online methods for writing instruction, due to time limitations and other practical constraints.

Hence, the current study was an attempt to address y EFL students' weak written performance, which might be attributed to the teaching methods adopted. It was argued that collaborative online writing can be a

sound entry point to develop students' writing skills. In particular, the study tried to explore the effect of teacher presence in online collaborative contexts on learners' written performance, reading comprehension and learner autonomy. So, the problem of the current study was stated in the following main question:

"How will students' writing skills, reading comprehension and level of learner autonomy differ if they are exposed to two distinct modes of teacher presence during online collaborative writing?"

This main question was sub-divided into the following sub - questions:

1. To what extent will high versus low teacher presence during online collaborative writing have a differential effect on of EFL learners' delayed writing performance?
2. To what extent will high versus low teacher presence during online collaborative writing have a differential effect on students' reading comprehension ?
3. To what extent will high versus low teacher presence during online collaborative writing have a differential effect on students' learner autonomy?
4. To what extent will high versus low teacher presence during online collaborative writing have a differential effect on students' peer review process?

### **Purpose of the study**

This study aimed at developing EFL students' writing skills, by examining the influence of teacher's intervention in online collaborative writing, on students' online and subsequent writing performance, reading comprehension and learner autonomy. It is expected that the current study would provide some insight and practical considerations regarding online collaborative writing instruction, and its underlying processes. It is also hoped that this study will enable teachers and curriculum designers to design effective collaborative online writing activities, that take into account the role of the teacher and effective instructional strategies to be followed in this milieu.

## **The study Hypotheses**

The study hypotheses were as follows:

1. There are statistically significant differences between the mean scores of both experimental groups and the control one on the writing posttest, in favor of both experimental groups.
2. There is a statistically significant difference between the mean scores of the first group (HTP) and the second experimental group (LTP) on the writing posttest.
3. There is a statistically significant difference between the mean scores of the first group, as well as the second experimental group, on the writing pretest and posttest in favor of the posttest.
4. There are statistically significant differences between the mean scores of both experimental groups and the control one on the reading comprehension posttest, in favor of both experimental groups.
5. There is a statistically significant difference between the mean scores of the first and the second experimental group on the reading comprehension posttest.
6. There is a statistically significant difference between the mean scores of the first and the second experimental group on the reading comprehension pretest and posttest, in favor of the posttest.
7. There are statistically significant differences between the mean scores of both experimental groups and the control one on the learner autonomy questionnaire, in favor of both experimental groups.
8. There is a statistically significant difference between the mean scores of the first and the second experimental group on the post application of the learner autonomy questionnaire.
9. There is a statistically significant difference between the mean scores of both experimental groups on the pre and post application of the learner autonomy questionnaire, in favor of the post application.
10. There are statistically significant differences between the mean scores of the first and the second experimental group on the peer revision criteria incorporated.

### **Delimitations of the study:**

Since it is beyond the limits of a single study to consider a wide range of factors, this study was restricted to the followings:

- 1- Students' performance in writing main skills, including content, organization, language and mechanics; no analysis of students' performance on subskills subsumed under each category was conducted.
2. Students' performance on overall reading comprehension; no analysis of students' performance on literal and inferential comprehension, as separate sub-skills, was conducted.
- 3- A sample of 98 first year university students, College of Education, Kuwait University.
- 4- A limited duration for implementing the treatment (one semester, i.e., nearly three months).

### **Definition of terms**

#### **Collaborative online writing:**

It is defined as involving more than one student in the creation of an online text. It does not include only adding a section to a document, but it implies sharing ideas and feedback, challenging arguments, revising, raising questions about content and language, and sharing all of this publicly online.

#### **Teacher's presence:**

In the current stud, it is defined as the scale of teacher intervention in the online writing collaborative process, and his ability to moderate students' discussion and model the revision process (Alvarez, Espasa, and Guasch, 2012; Warnock, 2015). Two forms of teacher presence were compared in the current study: high teacher presence (HTP), and low teacher presence (LTP).

**Writing skills:** These refer to students' ability to write a short essay of 250-300 words, tackling different genres that reflect their mastery of the following writing sub- skills:

**A. Content:** This comprises producing clear relevant content and writing a suitable topic sentence that is relevant to the content.

**B. Organization:** This comprises writing an introduction relevant to the content, developing a body logically, writing a suitable conclusion, and using transitions to develop continuity.

**C. Language:** This comprises using a range of vocabulary and applying grammatical rules accurately

**D. Mechanics:** This comprises using punctuation and spelling words correctly.

In the current study, it is measured by the students' total score on the writing test, as well as their scores on each of the writing main skills: content, organization language and mechanics.

**Reading comprehension:** It is defined as the student's ability to understand a text, to relate it to his previous knowledge and to interpret what the writer is stating (Grabe and Stoller, 2002). It comprises tackling the text at a literal and inferential level. Literal comprehension skills include extracting the text main idea, extracting the text specific details, and recognizing the correct sequence of events in the text. On the other hand, inferential comprehension skills comprise inferring the text implicit main idea, understanding inferred details, using contextual clues to guess the meaning of unfamiliar words, and drawing conclusions. In the current study, it is measured by students' total score on the reading comprehension test designed for measuring students' literal and inferential comprehension.

**Learner autonomy:** It is defined as students' ability to hold the responsibility for various aspects of learning, or their capacity to control their own learning processes (Benson, 2013). In the current study, it is measured by students' score on the learner autonomy questionnaire.

## **Theoretical framework**

### **Collaborative writing**

Collaborative writing is defined as a group effort involving more than one student in the creation and writing of a text. It implies social interaction, sharing ideas, mutual revising, and raising questions about content and language (Elola & Oskoz, 2010). It is a method that improves students' sense of ownership and social skills, enhances their written fluency and accuracy, and enables them to create a product which includes different viewpoints (Suwantarathip & Wichadee, 2014). Studies tackling collaborative writing can be divided to those using face- to- face collaboration, and those using synchronous and asynchronous online tools. On the one hand, there is indication that face- to- face collaborative

writing is pedagogically effective (Balderas & Cuamatzi, 2018; Fernández Dobao, 2012; Fong, 2012; Storch, 2011; Wigglesworth & Storch, 2009), as it increases students' sense of responsibility towards the task, hones their motivation, and promotes their ability to engage in negotiating the writing process and product.

Collaborative online writing, on the other hand, entails going through the whole writing process, including drafting, revising, and editing, online and sharing all of these stages publicly. Online tools that facilitate online collaborative writing are called web 2.0 technologies, like wikis, google docs (GD) and blogs, which are recently gaining momentum in TESL/TEFL contexts (Blair, 2015; Brodahl, et al., 2011; Newbold, 2015; Zanatta, 2018). Unlike face-to-face collaborative writing, which might seem contrived, and cumbersome, online collaborative can be more purposeful and efficient. This is due to the fact that the students' writing process, not only the final product, is constantly visible to the teacher; this facilitates diagnosis of students' problems and, hence, enables the teacher to intervene purposefully to address their weakness and improve their skills (Kittle, & Hicks, 2009, p. 527). Furthermore, these tools enhance students' motivation as they work in a milieu, where the teacher is less authoritative, and a sense of community is built among them (Zanatta, 2018).

Various empirical studies attested to the effectiveness of web 2.0 tools in developing writing skills. For instance, Chen (2008) and Apple et al. (2011) proved that students who utilized Wikis performed better in writing and reading, and had a more positive attitude towards cooperative learning than students in regular contexts. Other studies were more concerned with analyzing students' writing subskills and perception towards writing. For instance, Tsoi (2010), Ciftci and Kocoglu (2012) and Aydin (2014) reported that incorporating Web 2.0 collaborative activities, including blogs and wikis, improved students' writing content, collaboration and task management. This is attributed to the shared knowledge production compared to individualized models of writing.

In the same way, Elola and Oskoz (2010), examining students' writing experience on wikis, concluded that learners mainly paid attention to content and organization, followed by grammar and editing. It was concluded that learners' positive perceptions of the use of technology supported the use of online social tools. Likewise, Lee (2010) proved that creating wikis had a positive impact on the development of ESL students'

writing skills; in particular, scaffolding provided by peer feedback helped students to organize content and improve language accuracy.

Yeh, et al. (2011) examined the effectiveness of (Process-Writing Wizard) - a system which scaffolds students to complete collaborative writing tasks. Results showed that students could produce better content and organization, and that they had positive attitudes towards the treatment. Likewise, Kessler et al. (2012) investigated the impact a web-based tool used to help university students collaboratively write a research project. Findings suggest that students focused more on meaning than form, and that their grammatical revisions were almost correct. Moreover, they assisted each other developing their content and editing the text.

Nonetheless, collaborative writing is not always as feasible as it might sound. Being accustomed to tackling writing as a solitary task, students might find it somehow challenging to adopt a more “collaborative mindset” (Blau and Caspi, 2009, p.49). For example, they might be reluctant to change or revise other students’ written products (Zhang, 2018). From another perspective, writers themselves might not be tolerant towards their peers’ revision (Chen, 2014). Moreover, compared to face-to-face collaboration, some researchers argued that although online collaborative writing promoted a sense of joint ownership among learners, the face-to-face mode can produce more in-depth discussions and more mutual support among students, due to its immediacy and physical presence of students (Min, 2019).

### **Google documents and online collaboration:**

Google documents (GD) can be a robust online collaborative writing tool. According to Metilia and Fitrawati (2018), GD helps students write together and combine their ideas with others’ ideas. Usually, each author on GD is assigned a unique color, so that it is easy to know who is concurrently working on the document, or who contributed to it before. Moreover, GD has a spelling checker, a built-in dictionary, and other devices to facilitate collaboration among writers (Brodahl et al., 2011). Students can edit a document simultaneously, and view their peers’ contributions immediately or even later (Suwantarathip & Wichadee, 2014). Besides, students can write notes and suggestions about the text in the margin, instead of directly interfering or editing each other’s work; this enables them to interact more quickly and conveniently (Zheng, et al., 2018).

From a pedagogical viewpoint, the teacher can utilize GD to give feedback to students and assess their performance, by leaving comments that they can see in real time or read and resolve later (Ebener, 2017). Nevertheless, the most important feature in GD is the revision history that shows all written contributions, comments, and editing processes students have gone through. This can help the teacher to scrutinize each student's written attempts and revision strategies, which gives them the chance to constantly and carefully scrutinize their performance. This constant teacher monitoring can act as a catalyst that encourages students to keep focused on the task, exert all their effort, and avoid dishonesty or passivity (Godwin-Jones, 2018; Moonen, 2015).

Online collaboration using GD can take multiple forms. Students can write *in order*; one student writes, then the next student completes the text. It can also take the form of *reactive writing*, as students collaborate and modify each other work to develop a joint product (Lowry et al., 2004). *Parallel construction* writing, on the other hand, occurs when the task is divided among students; each writes a different section. Yet, sometimes one student writes the whole text, to be reviewed and edited by others; this is called *lead writing* (Onrubia & Engle, 2009). Nevertheless, a *mixed mode* can be adopted, where two or more collaborative writing strategies are combined (Lowry et al., 2004).

Some studies examined the effect of GD on EFL students' writing. For instance, the study of Blau and Caspi (2009) investigated two types of collaboration on GD: making suggestions versus editing peers' drafts. Findings revealed that students believed that collaborative writing is of higher quality than writing individually. Moreover, suggesting was preferable to editing, as it decreased students' interference in their peers' original work, and so enhanced their sense of ownership. Similarly, Zhou, et al. (2012), proved that students could write longer essays and were able to work on collaborative writing more efficiently when using GD as compared to Microsoft Word. Yet, students' attitudes and competence in using online writing applications play crucial roles in their perceptions of collaborative writing.

Suwantarathip and Wichadee, (2014) compared students' collaborative performance on google docs (GD) with face to face collaboration. Results indicated that students in the GD group outperformed the other group and had positive attitudes toward collaborative writing. However, they found no effect on students' off-

line writing. Likewise, Zheng, et al., and Lin (2015) found that students spent more time editing and revising their work when they used GD than with paper documents, which fundamentally supported process-writing. In the same way, Moonen (2015) found revision history on GD to be helpful to students during the collaborative essay-writing process, as it made it easy for them to give feedback and keep track of each other's writing. In contrast to previous studies, Woodrich and Fan (2017) concluded that students who were engaged in face to face collaboration yielded better results than those who participated in anonymous collaborative writing via GD. Yet, they concluded that anonymity on GD could motivate ESL students to participate equally in a linguistically diverse classroom.

Even when compared with other online tools, GD proved to be paramount, as Brodahl and Hansen (2014) concluded in their study, which required university students to complete a reflective paper using either GD or a collaborative tool called EtherPad. Students from both groups appreciated the help they could obtain from their peers in terms of accuracy, content and organization. Yet, students in the GD group had more positive attitudes and were more willing to get feedback from peers during the writing process.

Nonetheless, although most previous research attests to the positive effect of GD in improving EFL/ ESL students writing skills, some problems were reported, such as students' unfamiliarity with GD features, ineffective response to peer feedback, and over-dependency on competent students (Ebener, 2017; Kittle, & Hick, 2009; Zhou, et al., 2012). To prevent these problems, more guidance should be provided to familiarize students with the use of these new tools, such as training them on providing feedback online.

### **Online peer feedback**

Peer feedback is the practice where students discuss and revise each other's written work (Min, 2006). Research has shown that peer feedback can be conducive for many reasons. On the one hand, unlike teacher's correction, which is perceived as threatening and authoritative, students feel more comfortable and less anxious about feedback given by peers (Balderas & Cuamatzi, 2018). Furthermore, peer feedback guarantees equal participation of all students, and increases their autonomy (Ciftci & Kocoglu, 2012). Likewise, receiving comments from

several people provide students with multiple levels of scaffolding and individualized feedback, without overloading the teacher (Jesnek, 2011; Xianwei, et al, 2016; Yuhardi, 2014). From another perspective, students also produce feedback, which requires more cognitive effort than just receiving it, and hence it increases students' level of engagement and reflection (Baker, 2016; Ciftci, & Kocoglu, 2012; Ekşi, 2012). It also helps both the writer and reviser understand the reasoning behind revising and correcting the written text, especially when feedback is negotiated and challenged (Ebener, 2017).

Online peer feedback entails utilizing synchronous and asynchronous tools by students to support each other's in the revision processes. A growing body of research has embarked on exploring the effect of online peer feedback on writing performance. For instance, Grami (2012) investigated EFL students' use of online peer evaluation in blogs. It was concluded that peer feedback was used as an integral part of collaborative writing, and that it helped students develop critical thinking and acquire a sense of audience. Similarly, Ciftci and Kocoglu (2012) revealed that Turkish EFL students exposed to online peer feedback showed higher writing performance than students utilizing offline feedback, and that they had more positive perceptions on the use of blogs in writing classes.

AbuSeileek and Abualsha (2014) investigated the effect of using three styles of peer computer-mediated feedback on EFL learners' writing performance. The first is direct method called the "track changes" feature, which marks modifications made by students in a different color. The second is recast feedback (editing the text), whereas the third is metalinguistic feedback (discussing mistakes and giving rules). The study showed that the track changes feature was superior to the other two feedback types. It was concluded also that online peer feedback is more influential than offline feedback, because it is easier for the teacher to refer to peers' comments and evaluate their impact on students' writing. Yet, Zhang (2018) proved that the quality of EFL students' feedback is not the only factor that matters in online peer revision. He proposed that the quality of writers' response to revision, or what is called (back-feedback), had a slightly larger impact than students' feedback.

However, unlike teachers' feedback, peer feedback may lack accuracy or be rather perplexing, and so students might feel hesitant to accept it (YastÖbaúa and YastÖbaúa, 2015); some studies show that the adoption

of peer feedback ranged from (5%) to little above (50%) (Balderas & Cuamatzi, 2018; Chou, 2011). Nevertheless, students' doubtfulness regarding peer feedback can motivate them to indulge in discussion and negotiations with peers, which in turn leads to successful revisions and more critical thinking compared to those prompted by teacher's feedback (Xianwei et. al., 2016).

### **Analysis of peer revision:**

Analysis of discourse strategies used by students during peer revision provides insight of how it can facilitate the learning process, and helps in identifying the forms of explicit or implicit support students may need during this process (Choi, 2014). Many classifications were adopted to classify students' peer revision and feedback. For example, Arnold, et al. (2012) focused on students' level of interactivity. Thus, they examined online revision behaviors of university EFL learners, who created wiki pages about a novel read in class. The study aimed to determine whether students revised only their own work (cooperation), or revised the whole text (collaboration). Results indicate that students utilized both collaborative and cooperative strategies to make revisions, but they tended to focus more on revising their own content, instead of revising the whole text, which alluded to students' lack of participation and the need for more teacher guidance.

Peer feedback can be classified also- in relation to its area- as either global or local. Global feedback refers to revision focused on the content, purpose, and organization of writing, whereas local feedback refers to feedback about mechanics, grammar, and vocabulary. Hewett (2006) concluded that around half of students' discourse is centered on interpersonal communication, and that most of students' exchanges focused on writing processes (e.g., topic sentence, supporting ideas, organization), followed by content.

Adopting a distinct approach, Liang (2008) categorized students' online discourse and feedback as follows: (1) meaning negotiation, (2) content discussion, (3) error correction, (4) task management, (5) social talk, and (6) technical procedures. Results showed that despite the small amount of negotiation, peer feedback in the form of questions, explanations, rephrasing, and suggestions, helped students make modifications at the word, sentence, and discourse levels. In (2010), Liang, conducted a study to investigate synchronous online interaction

among EFL Taiwanese undergraduates. It was concluded that students were more involved in social talk, task management, and content discussion; however, meaning negotiation, error correction, and technical actions were rarely tackled. Moreover, it was difficult to draw a direct correlation between online interaction and students' subsequent writing and revision.

Thus, it seems that whether students prioritize meaning or accuracy in peer revision is still controversial among researchers, and the results are somehow conflicting. On the one hand, Hewett (2006), Kessler et al., (2012) and Ware and O'Dowd (2008), found that, as long as grammatical errors did not interfere with meaning, learners were not particularly concerned with the accuracy of their writing. Researchers pinpointed that students' inability to correct each other's grammatical mistakes might be a result of their failure to notice problems in their partners' writing, or their reluctance to appear critical of a partner (Lee, 2010; Ware & O'Dowd, 2008). However, Arnold et al. (2012) and Lee (2010) found that learners gave linguistic feedback-at the sentence or word level-precedence most of the time.

From another standpoint, peer feedback can be coded according to its directness (Bloxham, 2014). Direct feedback includes alteration, suggestion, and explaining. Alteration refers to explicit correction of the text; however, suggestion includes recommendation for modifications. Explaining means describing the nature of the problem, and often takes the form of metalanguage to help the writer make corrections. Indirect feedback includes evaluation, which comprises judgement, but does not include suggestions for improvement, and clarification, which means seeking explanations of ambiguous ideas, words or structures (Ekşi, 2012). It was concluded that indirect peer feedback in the form of clarification proved to be more beneficial to students than direct peer feedback, as it requires writers to rethink and negotiate their peers' remarks, instead of just applying what they have suggested.

Comparing the revision strategies of high versus low proficiency EFL learners, Yang (2017) found that high-proficient student writers were more capable of making decisions regarding suggestions from both peers and the teacher. As revisers, they were able to provide more indirect feedback compared to less-proficient students. On the other hand, less-proficient students tended to copy their peers' feedback without so much reflection. As revisers, they restricted themselves to direct correction of

their peers' grammatical errors. Hence, Yank (2017) and Shukor et al. (2014) recommended mixed-ability grouping in online collaborative writing, so that low proficient students can learn from their more proficient counterparts.

### **Teacher online presence**

It was argued by researchers that peer revision can be a complex process, and so if students are left online to their own devices, they may confine their revision and discussion to peripheral aspects, and might ignore tackling writing at a deeper level to address other aspects, such as content, organization and meaning (Arnold, et al.; 2012; Liang, 2010). Furthermore, so far no substantial conclusion has been drawn regarding the best way to manage and improve online peer revision. From another perspective, some teachers find it difficult to implement peer revision due to students' lack of trust in their peers' feedback, inability to produce quality comments, and tendency to work individually (Snart, 2015; Yang, 2017).

One solution to this problem is to provide students with training to improve the revision quality and hence students' writing (Arnold et al., 2012; Lam, 2010; Moloudi, 2011). The training can be initiated with a discussion of the potential advantages and problems of peer review, followed by explanation of how peer revision proceeds, utilizing sample revisions (Ekşi, 2012). In addition, linking peer feedback to teacher feedback, through providing comments on peers' feedback, can facilitate peer revision (Nicol, 2010; Bloxham, 2014). Therefore, teacher's constant modeling, scaffolding and support of online revision are warranted to ensure that students can reap benefit, and to draw their attention to macro level characteristics of the writing process (Hewett, 2015; Yang, 2017.).

Garrison, Anderson, and Archer (2000) in their Community of Inquiry model (COI), referred to what is called "teaching presence", which refers to how the teacher projects him/herself socially and pedagogically in an online community to decrease students' sense of loneliness (p.88). It is reflected in the teacher's ability to moderate students' discussion and explicitly modeling the revision process (Alvarez et al., 2012; Warnock, 2015). Thus, instead of the traditional rubric, teacher's feedback can be provided in the form of explicit in-text written or audio comments or feedback, which enables the teacher to act as a monitor, scaffolder and facilitator of the writing process (Cox, et al., 2015).

Yet, Alvarez et al., (2012), argued that in collaborative online writing contexts, indirect teacher feedback, in the form of suggestions and questions, leads to more discussion of the content, and consequently to more significant changes in the text under revision, compared to direct feedback. Therefore, in the current study, two forms of teacher presence were compared: the first was more directive and explicit “high teacher presence”, whereas the second was less explicit “low teacher presence”.

### **High teacher presence (HTP):**

Based on the social constructive learning models, Ebener (2017) argued that, in online contexts, teachers need to be available and in frequent conversation with students on an individual level during writing instruction to constantly provide explicit instruction and guidance. Similarly, Choi (2014) contends that in these contexts, teacher’s scaffolding plays a mediatory role that bridges the gap between peer reviewers and writers. Teacher explicit presence can take the form of initiating discussion, focusing discussion on specific issues, diagnosing misconceptions, or injecting knowledge (Cox, et al., 2015; Edwards, et al., 2011; Richardson, et al., 2015). It is thought that high teacher presence can enable students to acquire the necessary writing skills, and provide a conducive instructional milieu that emulates direct individualized teacher feedback in traditional classrooms. It seems that the explicit and personalized directions given by the teacher in these contexts helps mitigate students’ uncertainty, loneliness and helplessness associated with online learning.

### **Low teacher presence (LTP):**

Unlike advocates of high teacher presence, some researchers argue that the teacher’s role, or presence, should be a facilitative one that happens sporadically and less overtly (Anderson et al., 2001). This means that the teacher’s intervention should not be initiated, unless students seek help, communication comes to a halt, or the discussion is unfocused. Individualized assistance is kept to a minimum, and more focus is given to general, supportive and holistic comments. Throughout this type of feedback, teacher’s presence is established, yet more autonomy is allocated to students (Bloxham, 2014).

## **Learner autonomy**

Learner autonomy simply means the learner's ability to hold the responsibility for various aspects of learning, and to control their own learning processes (Benson, 2013; Garita, &Elizondo, 2013). It helps develop learners' motivation and metacognitive knowledge. Yet, unlike traditional language classrooms, where teachers might find it challenging to promote learner independence, or adopt the idea of autonomy per se (Yeung, 2016), online collaborative tools can be used as a means of rendering students more autonomous (Foroutan et al., 2013; McLoughlin & Lee, 201; Warschauer & liaw, 2011). Throughout these tools, students can set their own objectives, progress at their own pace, practice self-reflection, and exercise self-regulation through tools, such as online dictionaries, word processors, and online searches (Krebs et al., 2010).

Besides, the online environment offers students the chance to interact freely and take risks with no much teacher's intervention (Kulsirisawad, 2012). In this context, peer feedback can be paramount in raising their linguistic awareness, encouraging a sense of ownership, and boosting their critical reasoning (Xianwei, et al., 2016). Therefore, it is believed that collaborative online writing would result in students taking more active role in monitoring and controlling their own learning; and that there would be significant long-term benefits in relation to the development of their autonomy (Nicol, 2010). Notably, to be the best of the researcher's knowledge, there is a scarcity of experimental research on the effect of GD on learner autonomy in EFL contexts.

## **Conclusion**

It is evident from the previous review that GD can act as a useful tool for practicing online collaborative writing. Yet, care should be taken of how to manage and incorporate collaborative writing into regular classes. It is also evident, according to some studies that online collaboration might lead to unpleasant learning experience, for example, jeopardizing students' sense of ownership, or their equal contribution to the assignment. Nonetheless, studies attested to the fact that using suggestions that can be accepted or rejected, instead of directly editing others' mistakes, helps students maintain ownership and control over the writing process. Moreover, it was proved that teacher intervention can regulate students' participation and quality of contribution (Suwantarathip & Wichadee, 2014).

Notably, unlike the plethora of research that explores the effect of Wikis, only few studies gave a specific focus to the use of GD in EFL settings (such as Ebener, 2017; Godwin-Jones, 2018). Furthermore, most of the research conducted is based on case studies, and so results cannot be generalized (For example, Zhou, et al., 2012). Add to this, there are contradictory results regarding the impact of GD on offline writing. For instance, Liang (2010) indicated that students' online interaction did not affect their off-line writing performance. Likewise, Woodrich and Fan (2017) indicated that face-to-face collaborative writing was more effective than online writing.

Moreover, to the best of the researcher's knowledge, few studies have embarked on the task of analyzing students' online discourse to assess the online writing collaborative process itself. In addition, none of the previous studies have explored the influence of teacher presence on students' online writing performance. Hence, Krebs et al. (2010) and Godwin-Jones (2018) argue that more empirical studies are needed to examine the effect of these variables.

Therefore, the current study attempted to investigate the impact of two forms of teacher's intervention in online collaborative writing milieu, namely GD, on peer online feedback and subsequent revisions, as well as on students' delayed offline writing performance, reading comprehension and learner autonomy. Students were engaged in a mixed mode of online collaboration, including both parallel construction and reactive writing as explained before.

## **Method**

### **Research design**

The quasi-experimental design called the non-equivalent group design was incorporated. This technique is identical to the pretest-posttest control group/experimental group design. However, intact groups are selected instead of the random sampling method adopted in experimental methods.

### **Participants**

The study sample comprised 98 fresh female students enrolled at the College of Education, Kuwait University, who were of different majors. The students were enrolled in a foundation EFL intensive reading and writing course, entitled English (161), taught by the researcher, over a six-month period. The writing course was intended to develop students'

writing skills, using expository, descriptive and narrative genres. The students met in class five times (sessions) a week (each session spanning 90 min); three classes were allocated to writing instruction, and two to reading instruction.

The sample included three intact classes, the first class was assigned to the first intervention (HTP) and comprised 30 students; the second was assigned to the second intervention (LTP) and comprised 31 students, while the third acted as the control group and included 37 students. Students were aged between 18 and 22 and had been learning EFL in for 12 years. Thus, the participants could be considered a fairly homogenous group in terms of their learning history and language proficiency.

## **Instruments**

In the current study, the independent variable was online collaborative writing, which was mediated by two distinct modes of teacher intervention; the dependent variables were students' offline writing performance, reading comprehension and learner autonomy. The impact on students' learning was evidenced by three instruments including a writing test, a reading comprehension test, and a scale investigating learner autonomy. Moreover, students' experience on GD was explored using a perception survey.

### **1-The writing test**

A writing pre-posttest was developed and utilized to investigate the effectiveness of the study interventions in developing the selected writing skills, which were derived from the students' curriculum. The test was submitted to a panel of jury of EFL faculty staff and instructors (N. 10), who proved its validity and suggested omitting one task. Topics included were unseen by the students to ensure that they reflected their actual performance. The test final version consisted of two writing tasks, each required students to write an essay of 250 words, the first was an expository one: "How to make a good impression on people", and the second was a descriptive one: "Describe a movie, a book or country you visited".

In order to establish the test reliability, the test-retest method was applied on a group of 18 university students. The correlation coefficient between the results of the two tests was (0.86). Therefore, the test was considered reliable for the purpose of the current study. The pre-test was

administered to the study groups three days prior to the experiment. The post-test was administered 3 days after the experiment. Test time was estimated by calculating the average length of time the pilot group of students took to finish the exam, which was approximately 40 minutes.

To correct the test, the analytical scoring method was adopted as most appropriate for realizing the study purpose. The researcher assigned a weight of (5) marks for each skill, (5) for content, (5) for organization, (5) for language, and (5) for mechanics. So, each written piece was marked out of (20). As the test consisted of two writing tasks, it was scored out of (40). Two raters marked the test; if the discrepancy between them exceeded 8 points, a third person re-examined the test. Inter-rater reliability was calculated; the correlation coefficients among raters of the pre-posttest were high as shown in the following table:

Table (1)

*Summary of the correlation coefficients between individual raters*

Raters	Control group	Experimental group (1)	Experimental group (2)
	I, II	I, II	I, II
Pre-test	.80	.84	.78
Post-test	.94	.87	.82

## 2- The reading comprehension test

A pre- post reading comprehension test was developed by the researcher to assess students' comprehension skills. On the whole, the test subsumed two texts, each 310-360 words in length. The readability level of the selected passages ranged from 53-68 on Flesch reading ease scale. This level matched the readability level of the texts included in students' text book "Skills for Success: Reading and Writing 2" (Bixby & McVeigh, 2010). The test consisted of 31 items assessing literal and inferential comprehension skills, as determined by the university syllabus.

To measure the test content validity, the first version was submitted to 10 TEFL specialists, who approved it in terms of content, length and suitability to students' level. The test was also piloted on a sample group of 20 university students similar to the study sample. Non-functioning items were removed, and some were modified. In order to establish the test reliability, the test-retest method was used with an interval of two weeks. The reliability coefficient was 0.75. Test time was estimated by

calculating the average length of time the pilot group of students took to finish the exam, around 35 minutes.

Each item whether multiple choice, true/false, fill in the gaps or matching was scored as correct (1 point), or incorrect (0 point). Yet, open-ended items, requiring more than one piece of information, were scored out of two; spelling and grammar mistakes were overlooked. The test was scored out of 33 (See appendix).

### **3-Learner autonomy questionnaire**

The learner autonomy questionnaire designed by Kashefian (2002) was utilized in the current study. It consisted of two main parts: The first part solicited demographic information. The second part comprised 40 items, on a 5- point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). Kashefian (2002) confirmed the questionnaire comprised five factors of learner autonomy: learner independence, dependence on the teacher, learner confidence, attitudes toward language learning, and self-assessment. A pilot study of the questionnaire- on (13) students- was conducted, and the internal consistency reliability coefficient was calculated; it turned out to be (0.78), which reflected the test high reliability (see appendix).

### **4-Perception survey:**

An eleven-question survey was administered at the end of the treatment to investigate students' perceptions of online collaborative writing and the use of GD. The survey comprised both Likert-scale and open-ended questions. Students in both experimental groups were asked to complete the survey.

## **The treatment**

The treatment was carried out over a period of 13 weeks, starting on October 16<sup>th</sup> 2016, and ended on January 28<sup>th</sup> 2017. On the first week, students in the three groups were pre-tested to determine their writing and reading comprehension performance, as well as their autonomy. After that, students in the three groups had to go through the following stages:

## 1-Consciousness-Raising Stage:

### 1-1 Writing genres

In week one, three sessions were allocated to teach students how to write four kinds of paragraph; these included opinion, cause-effect, compare and contrast, and problem solution paragraphs. After each lesson, students were asked to write mini-essays to be brought to class in week two and three to do their training.

### 1-2 Writing skills

In week two, students in the three groups, spent three sessions (60 minutes each) to be taught how to handle content, organization and language problems, using samples from students' paragraphs, as well as other written exercises. For example, students were instructed to choose the correct topic sentence for a paragraph, determine relevant ideas, use suitable connective words, and correct grammatical structures.

## 2- Peer Review Training

Students in the three groups were exposed to face-to-face peer review training as follows:

### 2-1 Modeling:

Modeling peer review strategies were taught in two sessions during week two, each spanning 60 minutes. On the first session, peer review was introduced, and strategies for peer reviewing as suggested by Min (2006), were demonstrated. In the second session, students had to practice peer review using samples provided by the teacher. The strategies demonstrated by the teacher were as follows:

**a. Clarifying writer intention:** If the writer's intention was not clear, peers were urged to locate the trouble source, and raise questions such as "what do you mean by . . .?" "are you saying...?" "I did not get this", or put a question mark to prompt the writer to explain or revise his/her ideas.

**b. Identifying and explaining the problem:** If students were certain that the writing had something wrong, they could explain why they thought was problematic to convince the writer to accept their comments. Symbols and codes to signal mistakes could also be used.

**c. Making suggestions:** If student reviewers thought the writer had made a mistake, they could provide a more appropriate way of

writing it. Writers might not adopt their suggestions, and might work out a solution by themselves.

Students were taught that clarifying writer intention was preferable to the other two methods.

### **2-2 Online peer review:**

In week three, both **treatment groups**- but not the control group- engaged more autonomously in peer review activities on GD. First, during a face-to-face session, students were taught how to use GD. Every two students were asked to create a file, and share it with the teacher. Students were asked to type one of their essays on GD, and were given three days at home to comment on each other's online drafts. Student writers could then revise their drafts and submit them again on GD.

Students were also trained- during one session- to analyze peer feedback, through keeping *a peer review log* (See appendix). Both reviewers and writers were taught how to code comments they made or received in terms of: a) category (content, meaning, organization, grammar and mechanics); and (b) type (explanation, clarification, or suggestion). Student writers, on the other hand, were asked also to determine which feedback they followed, and explain why they could not follow some comments.

### **3- The GD project:**

The project proceeded as follows:

**Stage 1: Getting ready for the project:** During week 4, students in both GD groups were asked to form teams of three or four members to produce a report ranging from 3500 to 4000 words on an educational topic of their own choice. The leader- chosen by each group- was then required to create a file on GD and invite the teacher and her peers by entering their email addresses.

**Stage 2: Researching topics:** During the rest of week 4, the teacher asked every group of students to meet in class or out of class to brainstorm the main ideas of their chosen topic, divide it into at least three main sections, and draw an outline. During week 5, students were urged to surf the internet to gather, organize, and analyze information relevant to their topics. Resource materials were exchanged and agreed upon by each group, with the teacher working as a monitor and consultant.

**Stage 3: Writing the project:** Throughout weeks 6-7, members in the groups started writing their first drafts simultaneously; each student

tackled a certain subtopic in the project. Students were instructed to write in their own words and avoid copying verbatim from resources, as they were warned that plagiarism checkers were used regularly by the teacher.

#### **Stage 4: Peer revision**

During week 8, students engaged in the first round of peer reciprocal revision. They had to revise their peers' three times; in the first time the main focus was on content and meaning; the second was on organization, while the third was on language and mechanics. Revising content and meaning included checking main ideas, examining relevancy, challenging opinions, indicating understanding or lack of it, and spotting places where they suspected plagiarism. Revising organization included checking how information was organized in the whole text, checking the structure of each paragraph and the use of transition markers. Revising language and mechanics included revising accuracy, vocabulary usage, spelling and punctuation.

Students were required to use the comment feature to record their suggestions, to provide explanations, or ask peers for clarification. The whole process was monitored by the teacher to make sure that all students were active, and that more competent students would not dominate the writing process.

#### **Stage 5: Teacher revision (distinct interventions for both groups)**

Since the study intended to compare the effect of teacher presence on students' performance, two treatments were adopted throughout week 9-10 with both treatment groups. The teacher's role in both groups is explained in detail in the following section.

#### **Low teacher presence group (LTP):**

This group was not directed much by the teacher, as they had to think autonomously to figure out their peers' mistakes, or appropriate use of language or style. Similarly, students had to check their peers' feedback and self-correct their mistakes with no much intervention on the teacher's part. So, the teacher's intervention was general, sporadic, and indirect. Moreover, the teacher did not initiate the correction process and her contribution was restricted to the following forms:

**1-Reinforcing students' contribution:** the teacher commended students' efforts and recognized their participation (i.e., *"this group's comments are effective; thank you for your questions/ comments;*

*brilliant discussion; good (student name) for recognizing organization...etc.).*

**2-Prompting discussion:** the teacher nudged students to respond to their peers' revision, to prevent passivity, using elicitation (i.e., *good discussion. So, do you think you need to change your sentence? Any thoughts on this issue? Why didn't you correct your mistake?... etc.*).

**3-Eliciting Elaboration:** the teacher prompted revisers to provide further explanation to their revision (i.e., *it is not clear; try to explain the mistakes clearly? I agree with you, but can you explain why to your peer...etc.*)

**4- General evaluation:** the teacher assessed the efficacy of the whole process (i.e., *you haven't revised your friends' writing yet; this group is not working well together...etc.*).

During week eleven, student revisers were given the chance to reconsider teachers' general comments, modify their revisions accordingly, and provide further comments. During week twelve, student writers' were requested to revise comments by peers, taking the teacher's comments into account, discuss modifications with them, and edit their work in light of suggested remarks.

### **High teacher presence group (HTP):**

By and large, in this group, the teacher's presence, as a monitor, participator and collaborator, was felt all the time by the students. Thus, while in the first group, the teacher prompted discussion, and raised general questions, without initiating the correction process, modeling feedback or providing rules, in the second group the teacher's response was explicit, constant, elaborate and mostly individualized. In particular, beside the roles the teacher played in the LTP group, the teacher's intervention was more intense as follows:

**1. Initiating revision:** the teacher underlined mistakes or ambiguous parts of the text, and put question marks to prompt individual writers and peer revisers to reconsider first drafts: (i.e., *this word is not good. Find another word; read again and think of the main idea; this word is still a difficult word...etc.*).

**2. Focusing the discussion on specific issues:** the teacher attempted to draw individual writers and peers' attention to areas they had disregarded, or could not focus on (i.e. *Can you specify exactly the*

*mistake that your friend has pinpointed? the problem is in spelling, right? ...etc.).*

**3. Confirming revision through explanatory feedback:** the teacher assured writers and peers of their revision and provided further explanation (i.e., *so, do you think you need to add another word? I think your peer means the atmosphere outside; yes, I agree this is wrong because you need past simple here...etc.*).

**4. Diagnosing and modifying misconceptions:** the teacher either **corrected writers'** wrong revisions (i.e., *your peer wants you to talk about the reasons not solutions; do you think the word you have used make sense?* or **corrected peer revisers'** wrong feedback (i.e., *"I think the problem is with the passive not tense! this is wrong correction; are you sure the problem is with the article? ...etc.*).

**5-Injecting knowledge:** the teacher provided rules to help students make right revisions (i.e., *we have to make sure that all details are relevant; we don't put two subjects in one sentence; you cannot use the present simple here" ...etc.*).

**6-Identifying areas of disagreement/agreement:** the teacher spotted places where students reached or did not reach consensus about a certain revision (i.e., *she has provided strong evidence against your opinion. Would you care to respond?... etc.*)

**7-Summarizing the discussion:** the teacher summarized students' revisions, areas of improvement, and drew their attention to areas that needed further attention (i.e., *"you mentioned three causes of .., but your friend wants you to write more; you need to recheck grammatical mistakes your peer has pointed out; you corrected spelling, but still you need to revise punctuation...etc. ).*

During week eleven, student revisers and writers were given the chance to reconsider teachers' individual comments, respond to her questions, modify texts or their revisions accordingly, provide further comments, and engage in more discussion with the teacher and their peers. During week twelve, student writers were requested to revise comments by both the teacher and peers, discuss modifications and edit their work in light of suggested remarks.

**Stage 6: Post-testing:** By the end of the 13th week, posttests were administered to the three study groups.

**Timing of the treatment:**

The students could access GD freely at any time of their convenience, at home or at university. Regular access to GD in both treatment groups ranged from three times to ten times a week. The time students spent online for each collaborative encounter ranged from 20 minutes to one hour. The treatment timing in both groups was quite similar as shown in the following table:

Table (2)  
*Treatment timing for both treatment groups*

Weeks	Treatment group 1 (HTP)					Treatment group 2 (LTP)				
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 1	Day 2	Day 3	Day 4	Day 5
1	Writing pre-test	Reading & autonomy pretest	Teaching Writing genres	Writing genres	homework	Writing pre-test	Reading & autonomy pretest	Teaching Writing genres	Writing genres	homework
<b>Time &amp; place</b>	40 min in class	(reading_30 min),(autonomy/ 20 min)/ in class	60 min in class	60 min In class	At home	40 min in class	(reading_30 min),(autonomy/ 20 min) in class	60 min/ In class	60 min/ In class	At home
2	Teaching writing skills			Peer review training		Teaching writing skills			Peer review training	
<b>Time &amp; place</b>	60 min In class	60 min In class	60 min In class	60 min In class	60 Min In class	60 min In class	60 min In class	60 min In class	60 min In class	60 min In class
3	Creating accounts & signing	Modeling online peer review	Analyzing peer feedback			Creating accounts & signing up to GD	Modeling online peer review	Analyzing peer feedback		
<b>Time &amp; place</b>	40 min In class & mobiles	50 min In class	60 min in class			40 min In class & mobiles	50 min In class	60 min In class		
4	Getting ready for project	Choosing topic & project planning				Getting ready for project	Choosing topic & project planning			
<b>Time &amp; place</b>	20 min/ In class	35 min in class	5 min class			20 min/ In class	35 min in class	5 min in class		
5	Researching the topic					Researching the topic				
<b>Time &amp; place</b>	Open time at the library and &home					Open time at the library and &home				
6-7	Students write their parts in project					Students write their parts in the project				
<b>Time &amp; place</b>	Open time at the library and &home					Open time at the library and &home				

Weeks	Treatment group 1 (HTP)					Treatment group 2 (LTP)				
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 1	Day 2	Day 3	Day	Day 5
8	Peer revision					Peer revision				
<b>Time &amp; place</b>	Open time at home & the library					Open time at home & the library				
9-10	<b>Teacher intervention</b> (high presence)+ <b>student revisers</b> and <b>writers</b> revise teacher’s <b>specific</b> comments and modify text and feedback accordingly					<b>Teacher intervention</b> (low presence)+ <b>student revisers</b> revise teacher’s <b>general</b> comments and modify feedback accordingly				
<b>Time &amp; place</b>	Open time at home & the library					Open time at home & the library				
11-12	Writers revise their work and discuss revisions with <b>teacher and peers</b>					Writers revise their work and discuss revisions with <b>peers</b>				
<b>Time &amp; place</b>	Open time at home & library					Open time at home & library				
13	Writing test	Reading test	Autonomy scale			Writing test	Reading test	Autonomy scale		
<b>Time &amp; place</b>	30 min in class	30 min in class	25 min in class			30 min in class	30 min in class	25 min in class		

**The control group:**

Students in the control group performed the same writing assignments in groups, in a face-to-face setting, but did not use google docs, and did not receive teacher’s feedback until they had finished.

**Data analysis and Coding**

In order to understand students’ writing discourse, the researcher analyzed group collaborative activity on GD. Students’ documents, comments, and the changes they made to the documents- as appeared in the editing history- were the data sources for this study. Students’ online interaction patterns in 16 groups- comprising 3 to 4 students each- were analyzed, eight groups in the first treatment group (comprising 30 students), and nine in the second treatment group (comprising 31 students).

The current study distinguished between teacher –initiated comments and student-initiated ones. As the teacher’s presence was an independent variable, teacher’s comments were not counted since they were used only as a trigger to facilitate students’ interaction. However, all comments initiated by the students, and corresponding textual revisions (back-feedback), were coded using a coding scheme, including five main dimensions that emerged during data analysis, reflecting the observed discourse of writers and peers. The dimensions according to which the coding was conducted were as follows:

**1-Accuracy of feedback:** Students' feedback was classified as either correct or incorrect, depending on whether it conformed to language rules and conventions.

**2-Areas of feedback:** Following Liang's (2008) coding scheme, yet with some adaptation, the researcher categorized revision-related discourse under the following categories:

- **Content related feedback (CRF):** this included questions about main ideas and details, content elaboration requests, agreeing or disagreeing with the writer's opinions, and challenging arguments.
- **Organization related feedback (ORF):** this included comments related to reordering parts of the text, adding subtitles, adding transitions, and logical sequence of ideas.
- **Meaning related feedback (MRF):** this included negotiating ambiguous words, phrases or sentences, pinpointing misused words or sentences, and paraphrasing.
- **Language related feedback (LRF):** this included negotiating the use of grammar (part of speech, pluralization, tenses ...etc.), word usage, punctuation, and spelling.
- **Seeking help (SH):** This included entries where students sought assistance of either the teacher or peers.

### 3-Directness of feedback

Students' feedback was also classified as either direct or indirect; indirect feedback included clarification requests, whereas direct feedback included suggestions and identifying/explaining. Clarification requests comprised asking for explanation, such as questions about word or sentence meaning, use of grammar and punctuation, or macro-level clarification requests, addressing content or organization, i.e. "What is the purpose of this paragraph?". This category also included comments where students inserted a question or an exclamation mark.

Identifying/ explaining included comments describing the nature of the problem, or explaining rules to follow, i.e. "*This tense should be in the past; we cannot start the sentence with small letter*". On the other hand, suggestions included recommendation for modifications. i.e., "*why don't you change the idea from ... to ...? "You might use... rather than* ....

#### **4-Scale of subsequent interaction:**

Students' interaction and discussion are considered vital in improving their understanding of the writing process. Therefore, students' interaction subsequent to each student- initiated feedback was classified according to students' level of participation, as follows:

- 1- No further discussion
- 2- Discussion between the writer and the reviser
- 3- Discussion including the whole group

#### **5-Peer induced subsequent revision:**

In this study, changes made to the text under review were analyzed with the objective of assessing improvement to the revised document. Revision or back feedback was classified in relation to peer feedback as follows:

- 1-Feedback leading to correct change
- 2- Feedback leading to incorrect change
- 3- Feedback leading to no change

#### **Inter-rater reliability**

The classification scheme was applied by the researcher and two other colleagues working in the same place, who independently read and analyzed students' comments and subsequent revisions. To establish the reliability of the coding system, the researcher's assistants were trained on the use of codes; two projects were selected at random and evaluated by the researcher and the assistants. Discrepancies were resolved by mutual agreement, and ideas were exchanged on ambiguous categories. Some definitions were improved, and more examples were used for each category. Subsequently, the researcher along with the two other assistants corrected the rest of the projects. Interrater reliability was calculated, and an overall agreement of (84%) was achieved between raters. The researcher was also the teacher for the course, who had taught this online collaborative writing three times before, which helped enhance coding validity.

#### **Statistical analyses and results**

In this section, results pertinent to the study hypotheses are presented. First, one way ANOVA was administered to calculate whether there were statistically significant differences among the two experimental groups

(HTP), (LTP) and the control one prior to the intervention. Results indicated that there were no statistically significant differences between the mean scores of the subjects in the three groups, on the writing and reading comprehension tests, as well as on the learner autonomy questionnaire, prior to the treatment,  $p < 0.01$ . Therefore, it could be concluded that the three groups were homogenous at the outset of the study.

### Improvement in writing

As for the experimental evidence on writing skills, hypotheses one, two and three were examined:

*Hypothesis One: There are statistically significant differences between the mean scores of both experimental groups and the control one on the writing posttest in favor of the experimental groups.*

*Hypothesis Two: There is a statistically significant difference between the mean scores of the first and second experimental groups on the writing posttest.*

To examine these hypotheses, one-way ANOVA analysis was conducted to reveal the significance of differences between the mean scores of the control group and experimental ones as shown in table (3).

Table 3

*One way ANOVA comparing the experimental and the control groups on the writing posttest*

	Groups						F-Value	Sig	Location of significance		
	HTP		LTP		Cont				CON- -HTP	CON- LTP	HTP- LTP
	Mean	SD	Mean	SD	Mean	SD					
<b>Overall</b>	33.3	4.2	23.6	4.3	17.4	3.2	19.03	0.000	0.00**	0.001	0.001*
<b>Language</b>	7.17	1.07	4.8	1.5	4.2	1.2	25.1	0.000	0.00**	0.001*	0.00**
<b>Content</b>	8.2	2.1	5.4	1.9	4.5	2.3	15.4	0.000	0.00**	0.00	0.007
<b>Organization</b>	5.8	1.7	5.9	1.6	4.4	1.7	8.5	0.035	0.006*	0.003	0.98
<b>Mechanics</b>	5.5	1.3	4.87	0.6	2.4	2.3	3.4	0.003	0.001**	0.002	0.64

*Note. HTP= High teacher presence group, LTP= Low teacher presence group, Cont= control group; total score=40, total score for each skill=10*

As show in table (3), results of one-way ANOVA show that there was an overall statistically significant difference among the three groups in overall writing [ $F(2, 96) = 19.03, p = 0.000$ ]. The post hoc test shows that a statistically significant difference was located between the control group ( $M = 17.4$ ) and HTP groups ( $M = 33.3$ ),  $p < .01$ , in favor of the HTP group. In the same way, a statistically significant difference existed between the control group and the LTP group ( $M = 23.6$ ),  $p < .01$ , in favor of the LTP group. As far as writing subskills are concerned, results suggest that both the HTP and the LTP groups outperformed the control group in all skills,  $p < 0.01$ . So, it can be concluded that hypothesis one was proved.

Comparing both experimental groups, it becomes salient that statistically significant differences existed between the HTP group and LTP group in favor of the HTP group in overall writing,  $p < .001$ . This suggests that the HTP group outperformed the LTP group. Nevertheless, the comparison between both experimental groups in terms of writing skills, suggests that the HTP group surpassed the LTP group in language and content skills,  $p < 0.01$ ; nonetheless, no statistically significant differences were found between both groups in organization and mechanics ( $p > 0.01$ ). So, it can be concluded that hypothesis two was partly proved.

*Hypothesis Three: There is a statistically significant difference between the mean scores of the first group, as well as the second groups, on the writing pretest and posttest in favor of the posttest.*

To prove this hypothesis, a t-test for paired samples was used to determine the relative extent of change from pre-to post test for both experimental groups. See table (4).

Table 4

*T- test results comparing pre- post-test mean scores for the experimental groups in writing skills*

	HTP				LTP							
	Pretest		Posttest		t	sig	Pretest		Post test		t	sig
	Mean	SD	Mean	SD			Mea	SD	Mean	SD		
<b>Overall writing</b>	18.1	4.2	33.3	5.1	8.4	0.000	12.6	5.2	23.6	4.3	6.9	0.000
<b>Langua</b>	5.3	1.7	7.17	1.07	6.01	0.000	4.4	1.7	4.8	1.5	2.1	0.184
<b>Content</b>	4.1	2.2	8.2	2.1	11.2	0.001	3.03	1.5	5.4	1.9	11.01	0.000
<b>Organiza</b>	3.2	1.8	5.8	1.7	6.2	0.001	2.9	1.7	5.9	1.6	10.2	0.007
<b>Mechan</b>	3.3	1.3	5.5	1.3	5.4	0.001	5.6	1.3	4.8	0.6	4.6	0.001

Table (4) indicates that there were statistically significant differences at 0.01 level between the mean scores of the HTP experimental group on the pretest and posttest in favor of the posttest in overall writing and all writing subskills,  $p < 0.01$ . Similarly, there were statistically significant differences at 0.01 level between the mean scores of the LTP experimental group on the pretest and posttest in favor of the posttest in overall writing, and in writing subskills, except for language skills,  $p > 0.01$ . So, hypothesis three was partly proved.

### Effect on reading comprehension

Turning now to the experimental evidence on reading comprehension, hypotheses four, five and six were examined.

*Hypothesis four: There are statistically significant differences between the mean scores of both experimental groups and the control one on the reading comprehension posttest in favor of experimental groups.*

*Hypothesis five: There is a statistically significant difference between the mean scores of the first and the second experimental groups on the reading comprehension posttest.*

To examine these hypotheses, one-way ANOVA was utilized as shown in table (5):

Table 5  
*One way ANOVA comparing the experimental and control groups on reading posttest*

Groups						Location of significance				
HTP		LTP		Control		F-Value	Sig	CON-HTP	CON-LTP	HTP-LTP
Mea	SD	Mean	SD	Mean	SD					
n										
24.	3.7	21.2	4.1	12.5	4.8	11.01	0.000	0.000**	0.002	0.05

*Note: the total score is 33*

As shown in table (5), results of one-way ANOVA show that there was a statistically significant difference among the three groups on reading comprehension,  $[F(2, 96) = 11.01, p = 0.00]$ . A post hoc Tukey test showed that a statistically significant difference was located between the control and the HTP groups, and between the control and LTP groups, in favor of both experimental groups,  $p < 0.01$ . This demonstrates that both experimental groups outperformed the control group in reading comprehension. So, it can be concluded that hypothesis four was proved.

Nonetheless, comparing both experimental groups, it becomes evident that no statistically significant difference existed between both of them;  $p= 0.05$ . So the fifth hypothesis was refuted.

*Hypothesis six: There is a statistically significant difference between the mean scores of the first as well as second experimental group on the reading comprehension pretest and posttest, in favor of the posttest.*

To compare both experimental groups' performance on the pretest and posttest, paired sample t-test was used as shown in table (6).

Table 6

T-test comparing pre-post-test mean scores for experimental groups in reading comprehension

HTP				LTP				t	sig
Pretest		Posttest		Pretest		Post test			
Mea	SD	Mean	SD	Mean	SD	Mean	SD		
12.1	3.9	24.6	4.3	10.2	3.1	21.2	5.1	17.3	0.000

Table (6) indicates that there was a statistically significant difference at 0.01 level between the mean scores of the HTP experimental group on the pretest and posttest in favor of the posttest,  $p < 0.01$ . Similarly, there was a statistically significant difference at 0.01 level between the mean scores of the LTP experimental group on the pretest and posttest in favor of the posttest,  $p < 0.01$ . So, hypothesis six was accepted.

### **Effect on learner autonomy:**

To examine the treatment effect on students' learner autonomy, hypotheses seven, eight and nine were examined:

*Hypothesis seven: There are statistically significant differences between the mean scores of both experimental groups and the control one on the learner autonomy questionnaire, in favor of experimental groups.*

*Hypothesis eight: There is a statistically significant difference between the mean scores of the first and the second experimental group on the post application of the learner autonomy questionnaire.*

To examine both hypotheses, one-way ANOVA was utilized as shown in table (7):

Table 7

*One-way ANOVA comparing the three groups on the posttest of learner autonomy questionnaire*

HTP		LTP		CON		F-Value	Sig	Location of significance		
M	SD	M	SD	M	SD			CON-HTP	CON-LTP	HTP-LTP
158.4	8.17	152.3	4.01	116	9.2	24.6	.000	0.00**	0.00**	0.997

*Note: the total score on the autonomy scale is 200*

As show in table (7), results of one-way ANOVA show that there was an overall statistically significant difference among the three groups on the learner autonomy questionnaire;  $F(2, 96) = 24.6, p = 0.00$ . The post hoc test shows that a statistically significant difference was located between the control group ( $M = 116$ ) and the HTP groups ( $M = 158.4$ ),  $p < .001$ , in favor of the HTP group, and between the control group and LTP group ( $M = 152.4$ ),  $p < .001$  in favor of the LTP group. This demonstrates that both experimental groups outperformed the control group on the learner autonomy questionnaire. So, it can be concluded that hypothesis seven was proved. Yet, comparing both experimental groups, it becomes salient that no statistically significant difference existed between them,  $p > .001$ . This suggests that both groups were almost equal in learner autonomy. Therefore, there is no enough evidence to support hypothesis eight.

*Hypothesis nine: There is a statistically significant difference between the mean scores of both experimental groups on the pre application and post application of the autonomy questionnaire.*

To prove this hypothesis, a t-test for paired samples was used. See table (8).

Table 8

*T- test results comparing pre- post-test mean scores for both experimental groups in learner autonomy*

HTP						LTP					
Pretest		posttest		t	sig	pretest		Post test		t	sig
Mean	SD	Mean	SD			Mean	SD	Mean	SD		
105	6.2	158.4	7.3	10.0	0.000	111	5.2	152.3	4.01	17.2	0.000

Table (8) indicates that there was a statistically significant difference at 0.01 level between the mean scores of the HTP experimental group on the pretest ( $M = 105$ ) and posttest ( $M = 158.4$ ), in favor of the posttest;  $p < 0.01$ . Likewise, there was a statistically significant difference

between the mean scores of the LTP group on the pretest (M=111), and posttest (M=152.3), in favor of the posttest;  $p < 0.01$ . Thus, hypothesis nine was accepted.

### Students' revision process

*Hypothesis ten: There are statistically significant differences between the mean scores of the first and the second experimental groups on the peer revision criteria incorporated.*

Since the study aimed at analyzing students' feedback rather than the feedback provided by the teacher, the following section compared students' feedback in both groups according to certain criteria, as follows:

#### 1-Accuracy of feedback:

First of all, students' comments were categorized in terms of their accuracy. The number of correct versus incorrect comments in each group, and z score for equality of proportions, were calculated as shown in table (9):

Table 9

*Z score for equality of proportions between both groups in terms of feedback accuracy*

	HTP		LTP		Z score	sig
	Accurate (%)	Inaccurate	Accurate (%)	Inaccurate		
	199 (96%)	8 (4.1%)	99 (49%)	101 (51%)	10.7	0.00
<b>Total</b>	207		200			

Table (9) shows that students in the HTP group produced more correct revisions than students in LTP group, since a statistically significant difference existed between the percentages of accurate revisions produced by both groups;  $z = 10.7$ ;  $p = 0.00 < 0.01$ .

#### 2-Areas of feedback:

Students' correct suggestions were categorized in terms of areas of feedback: content, meaning, language, organization or comments denoting students' need for help. Z score for equality of proportions was calculated as shown in table (10).

Table 10  
*Z score for equality of proportions between both groups in areas of feedback*

Group	HTP	LTP	Z score	P value
Content	35 (18%)	17 (17%)	0.89	0.92
Meaning	70 (35%)	15 (16%)	3.6	0.00**
Language	48 (24%)	57 (58%)	6.5	0.00**
Organization	11 (6%)	6 (6%)	1.48	0.13
Seeking help	35 (17.6%)	4 (4.5%)	3.7	0.001**
Total	199	99		

Table (10) shows that as far as content revision is concerned, no statistically significant difference was located between the HTP and LTP groups;  $z = 0.89$ ,  $p = 0.92 > 0.01$ . Yet, for meaning related feedback, a statistically significant difference was found between both groups, in favor of the HTP group;  $z = 3.6$ ,  $p = 0.00 < 0.01$ . However, the results suggest that students in the HTP group produced less grammar-related feedback (24%) than students in the LTP group (58%),  $z \text{ score} = 6.5$ ,  $p = 0.00 < 0.01$ . Nonetheless, no statistically significant difference was located between both groups regarding organization-related feedback,  $z = 1.48$ ,  $p = 0.13 > 0.01$ , which was low in both groups. Nevertheless, it seems that more students in the HTP group sought help compared to students in the LTP;  $z = 3.7$ ,  $p = 0.001 < 0.01$ .

### 3-Directness of feedback:

To examine the difference between both experimental groups in terms of directness of peer revisions, z score for equality of proportions was calculated as shown in table (11).

Table 11  
*Z score for equality of proportions between both groups regarding directness of feedback*

Group	HTP	LTP	Z score	P value
Direct	103 (52%)	86 (87%)	5.9	0.001 **
Indirect	96 (48.3%)	13 (13%)	6	0.001 **
Total	199	99		

Table (11) shows that there was a statistically significant difference between the HTP group and LTP group in terms of feedback directness, in favor of the LTP;  $z = 5.9$ ,  $p < 0.01$ . This means that the LTP group provided more direct feedback than students in the HTP group. On the other hand, the HTP group provided more indirect revisions,  $z = 6$ ,  $p < 0.01$ .

#### 4- Scale of subsequent interaction

To examine the difference between both groups in terms of types of subsequent interaction, z score for equality of proportions was calculated as shown in table (12):

Table 12

*Z score for equality of proportion between both groups in terms of subsequent interaction*

Subsequent interaction	HTP	LTP	Z score	P value
Discussion between the	151 (73%)	80 (40%)	5.7	0.00**
Discussion with the whole	41.4 (12%)	8 (4%)	2.5	0.004
No further discussion	33 (16%)	110 (55%)	8.2	0.01
Total	207	200		

Table (12) shows that there was a statistically significant difference between both groups in terms of discussions carried out between revisers and writers, in favor of the HTP group;  $z = 5.7$ ,  $p = 0.00 < 0.01$ . Likewise, a statistically significant difference was located between both groups in terms of discussions engaging the whole group in favor of the first group,  $z = 2.5$ ,  $p = 0.004 < 0.01$ . Furthermore, data indicated that only (16%) of students' revisions in the HTP were not followed by further negotiations, compared to (55%) in the LTP; the difference between both groups was significant,  $z = 8.2$ ,  $p = 0.00 < 0.01$ .

#### 5-Peer induced correct revision

To examine the difference between both groups in terms of feedback leading to correct revision, z score for equality of proportions was calculated as shown in table (13).

Table 13

*Z score for equality for proportions for peer induced correct revision*

Group	HTP	LTP	Z score	sig
<b>Content</b>	20/35 (51%)	5/17 (29%)	1.6	0.089
<b>Meaning</b>	50/70 (71%)	5/15 (33%)	2.8	0.004*
<b>Language</b>	39/48 (81%)	19/57 (34%)	5.2	0.000**
<b>Organization</b>	3/11 (27%)	2/6 (37%)	0.4	0.63
<b>Total</b>	108/164 (66%)	31/95 (33%)	5.2	0.000**

*Note: The first two columns show: n. of correct writers' correct revisions / n. of correct peers' feedback*

Table (13) shows that in the HTP group, student writers accepted a total of (66%) of their peers' corrections. However, in the second group, writers accepted only (33%). Overall, there was a statistically significant difference between both groups in favor of the HTP group,  $z = 5.2$ ,  $p < 0.01$ . This means that the HTP accepted more peer revisions. As far as writing subskills are concerned, it seems that students in both groups struggled with accepting feedback related to global errors, such as content and organization. No statistically significant differences between both groups could be detected in content, and organization,  $z = 1.6$ , and  $0.4$  for both skills respectively,  $p > 0.01$ . The only areas where significant differences could be located between both groups was in language and meaning related revisions; the difference was in favor of the HTP group,  $z = 5.2$  and  $2.8$ ,  $p < 0.01$  for both skills respectively

## Students' perception

Students' results on the perception survey (in percentages) towards the use of GD in both groups were as shown in table (14):

Table 14

*Students' perceptions of using GD in writing*

Items	Students' opinions	HTP	LTP
1	Positive influence of GD	93%	54%
2	Usefulness of GD	95%	76%
3	Collaboration	86%	52%
4	Easiness and feasibility	43%	38%
3	Facilitating correction	16.7%	4.5%
4	Quality of group performance	94%	65%
5	Effectiveness of communication	76%	61%

As table (14) shows, more students in the HTP group realized the effectiveness and usefulness, of using GD, (93%), (95%), compared to the LTP group (54%), and (76%) respectively. Similarly, more students in the HTP group thought that GD enhanced the collaborative learning process (86%), the quality of group performance (94%), and effectiveness of communication (76%) compared to the LTP group, (52%), (65%) and (61%) respectively. However, only (43%) in the HTP group and (38%) in the LTP thought that GD is easy to use. Notably also, only (16.7%) in the HTP, compared to only (4.5%) in the second group, thought it facilitated the correction process.

Probing students' answers in detail, it was found that students mentioned the following reasons for enjoying using GD: peer correction (29% in the HTP and 6% in the LTP), choosing interesting topics (24% in the HTP and 17% in the LTP), self –correction (19.2% in HTP group and 6% in LTP group), and obtaining teacher's help (19% in the HTP, and 11% in the LTP). Furthermore, (19%) of the HTP, and (22.2%) of the LTP, considered GD a good way for monitoring students by the teacher, and providing them with help when necessary. As for the areas in which students benefited most, (66.7%) of the HTP group, and (77%) of the LTP group, agreed they have noticed that the most improvement was in organization, followed by content; yet only (19%) of students in the HTP, and (22%) of students in the LTP group agreed that language had improved.

## **Discussion**

This study was set out to explore the effect of two forms of teacher's intervention on students' online collaborative writing experience, and hence on their writing skills, reading comprehension and learner autonomy. By and large, it could be concluded that students responded positively to online collaborative writing, which was reflected in their enthusiasm for participation, online interaction and perceptions. At the beginning of the treatment, students in both groups were only involved in writing and editing their own work. Eventually, as the intervention progressed, they engaged more in mutual revision and realized they were jointly responsible of producing the document. Even weak students exhibited their skills at using technology and accessing online resources. These results were confirmed by Blair, (2015), Brodahl et al., (2011), Newbold, (2015), Ware and O'Dowd

(2008), and Zanatta, (2018). Nonetheless, quantitative data yielded more insights into both experimental groups' performance as shown in the following section.

### **Effect on writing skills:**

The results of the study showed that both treatment groups achieved some progress as was clear from the comparison of pretest and post-performance. Both groups progressed in writing skills, except that the LTP group did not show much improvement in language skills. However, there is an indication that both experimental groups surpassed the control group in all writing skills. This could be attributed to the treatment followed. In particular, students were writing to convey a message, not only to receive a grade. Furthermore, the process writing approach adopted, which was observed online by other students and the teacher, might have pushed students to put more effort in their work and indulge in revising and editing their writing more efficiently.

A further important finding is that the collaboration method facilitated by GD can increase students' motivation to learn and contribute to writing. GD provided students with the chance to combine their ideas together and share the production of the text in a vivid, collaborative and relaxing atmosphere, as all interactions and revisions were observed, recorded, and responded to by everyone. Students could also edit the documents simultaneously, and monitor their peers' contributions in real time or even later, which might have helped them learn from each other and feel more responsible for the writing process. Furthermore, unlike face to face collaboration, which is hidden from the teacher's observation, it was easier in this open transparent milieu to ensure that students contributed equally to the writing projects and that everyone had a definite role to play, which helped combat passivity and lack of participation, typical of face-to-face collaboration.

In addition, it seems that online peer online revision had a paramount role in augmenting students' writing skills. Student seems to have benefited from the constructive feedback provided by their peers and so they were able to diagnose their writing problems, related to language use, mechanics, content and organization. Unlike conventional teacher feedback which limits students' autonomy, students worked in a democratic setting, and were given ample chance to judge what to correct in their peers' writing and how to correct it. They also learned how to

assess others' feedback and suggestions and judge their accuracy and suitability, and hence, reject or accept them freely. This was reflected in student's offline delayed writing performance and in their positive attitudes towards the collaboration process as a whole. These results are consistent with previous studies (Brodahl, Hadjerrouit, & Hansen, 2011; Zhou, Simpson, & Domizi, 2012).

Nonetheless, in both groups, it was noticed that as students became more involved in peer revision, they started to ignore correcting their own work. This implies that more practice has to be directed to help students strike a balance between reviewing others' work and reflecting on their mistakes. This was corroborated by Alvarez et al., (2012), Arnold et al. (2012), and Ciftc and Kocoglu (2012).

As for the comparison of both treatment groups, there seemed to be some discrepancies between both groups' performance in overall writing in favor of the HTP group. As far as writing skills are concerned, there is an indication also that the HTP group performed better in content skills than the other group, which might be attributed to students' direct exposure to teacher's scaffolding which took the form of refuting ideas, deleting irrelevant ideas, or requesting elaboration of ambiguous ones (Tsoi, 2010). Similarly, the HTP group outperformed the other group in language skills, which can be ascribed to the teacher's constant modeling of the revision process, including vocabulary usage and grammatical conventions. It also suggests that with teacher intense presence, students could ensure that they are gaining the right knowledge and moving in the right direction; in other words, they felt more secure. The effect of teacher's presence on students' written performance in collaborative online milieu was supported by other studies (Choi, 2014; Edwards et al., 2011; Suwantarathip and Wichadee, 2014; and Yeh, et al., 2011). Unlike the HTP group, the LTP group was left to their own devices, and so even intermittent teacher intervention could not entice them to apply the skills they have learned regarding peer revisions. This was also reflected in their perception of GD, which was not as positive as that of the HTP group.

Regarding mechanics, no differences could be detected between both groups; both obtained low mean scores. This can be partly attributed to the fact that students relied excessively on the inherent editing features in GD to revise their work, which might have impeded their ability to pay attention to mechanics in the offline posttest. Likewise, no much

disparity could be found between both groups in organization skill. It seems that students in both groups could not devote much of their attention to it, as they were preoccupied with other types of revisions. There is also indication that even teacher modeling in the first group could not induce students to focus on text organization later on.

From another perspective, unlike the study of AbuSeileek and Abualsha (2014), which proved that direct peer feedback is superior to indirect feedback, the current study suggests that indirect peer feedback- in the form of clarification requests- can act as a catalyst for self-revision, and hence further improvement of students' writing. The findings are directly in line with previous findings by Liang (2008). Moreover, the current study attested to the fact that online performance can transfer to offline performance. These results corroborate those of Choi (2014); yet, contradict that of Suwantarathip and Wichadee (2014).

### **Students' online revision**

Students' online revision was analyzed according to the criteria selected for the purpose of the current study as follows:

#### **1- Accuracy of feedback:**

Comparing both groups, it seems that students in the HTP group could identify errors more effectively as compared to the LTP group; around (96%) of their feedback were accurate. Thus, we may conclude that teacher's presence can be important in helping students- especially those of low and medium EFL proficiency - identify mistakes in their peers' writing. On the other hand, it seems that students in the LTP group had over-identified what they thought were errors. In fact, (51%) of students' feedback were categorized as incorrect or unnecessary. This inaccurate feedback may have led writers to feel somehow skeptical of their peers' revisions. This was also reflected in the LTP group's performance on the posttest. Thus, it can be concluded that high teacher presence can help students provide more accurate peer revision.

#### **2-Areas of feedback**

Five different types of online feedback were examined in this study: content-related feedback, meaning-related feedback, error-correction, organization-related feedback, and seeking help. By and large, it is worth noting that in both groups, there was a high disparity in the

number of errors that peers found compared to the number of total errors that the researchers found.

However, some important patterns in both groups could be discerned. As far as content and organization related feedback is concerned, no differences between both groups could be found. Unlike other studies that view content as priority in students' revision in online collaborative contexts (Elola and Oskoz, 2010, Tsoi, 2010; Yeh, et al., 2011), in the current study, both groups seemed to have not paid much heed to correcting their peers' content and organization errors. The most common type of feedback provided by students in the LTP group was grammatical ones. That is to say, students who experienced less teacher's intervention were more inclined to focus on local errors. This was supported by the studies of Arnold et al. (2012), and Lee (2010) who found that learners usually give linguistic feedback precedence, and are often reluctant to revise content. Yet, surprisingly, LTP students' focus on revising language errors throughout the program did not reflect much on their offline performance; the HTP group surpassed the LTP group in both content and language skills. Hence, it might be concluded that teacher intervention in online collaborative writing had more impact than the revision process students indulged in.

Nonetheless, as far as negotiating meaning is concerned, the current study suggests that students in the HTP group had more chance to discuss meaning of words and sentences. This could be due to the fact that they were aware that the teacher shared with them the responsibility of error correction, and so they might have felt a sense of security and confidence that enabled them to probe new areas, read the text deeply and engage into the task of requesting clarification from their peers. Moreover, the category "seeking help", though not very obvious in both groups, was more salient in the HTP group, which could be attributed to the realization, by students, that the teacher would intervene and refocus discussion, in case they disagreed or provided false information to each other.

Taken together, these results suggest that in online collaborative writing, students, either writers or revisers, should be trained to focus more on clarity and effectiveness of conveying messages, and organization, instead of focusing only on local errors. Moreover, online EFL instructors should draw students' attention to global skills whenever

possible, and model how to revise a written text in terms of organization and content.

### **3-Directness of feedback**

It seems that the LTP group tended to provide more direct feedback as compared to the HTP group. This can be attributed to the fact that students, with less teacher intervention, might have felt that editing the text is their own responsibility, and so they considered direct correction as the best method to readily edit their document and deliver their intention explicitly to their peers. On the other hand, students who were supported by intensive teacher's assistance and modeling felt more competent, and were more willing to adopt a teacher-like stance, and so they chose to indirectly nudge their peers to correct their mistakes, instead of explicitly pinpointing them. This was supported in part by Yang (2017), who shows that high-proficient students tend to provide more indirect feedback. It also seems that this indirect method adopted by the HTP group had stimulated student writers to think and reflect on their mistakes, and to negotiate meaning, language and content with their peers, and so it might have reflected on their delayed offline performance. By contrast, student writers in the LTP, received their peers' direct correction, and copied it without much thinking or negotiation, and so it might have fallen short of expanding their knowledge and enhancing their writing skills.

### **4-Peer induced subsequent revision:**

Overall, it was evident that students in both groups could not integrate all the constructive feedback provided by their peers. Time constraints, lack of trust in peers' revisions and low linguistic proficiency seemed to have played a role in the number of suggestions that could be adopted by writers. Yet, in the LTP group, many suggestions were refuted, rejected or even neglected by the writers. It seems that students' inaccurate feedback in this group coupled with less teacher's guidance may have led writers to feel somehow dubious of their peers' revision. Hence, only (33%) of peers' feedback in the LTP group was trusted and included before submitting final drafts. This was corroborated by Arnold et al. (2012), Ciftci and Kocoglu, 2012, Lee (2010), Strijbos et al, (2010) and Ware and O'Dowd (2008), who argued that normally students, are hesitant to accept peers' feedback and are critical of their comments.

On the other hand, in the HTP group, students were more inclined to accept peers' revisions and apply them in their writing; they accepted around (66%) of their peers' feedback. This might be due to the fact that students felt that the teacher was monitoring the entire revision process, with all its details. Thus, we may conclude that teacher presence can be a significant factor in helping students- especially those of low language proficiency- acknowledge, negotiate and integrate peers' suggestions in their writing.

Furthermore, in both groups, it seemed that students somehow struggled with accepting global level revisions related to content and organization. This can be attributed to the fact that editing content and organization requires a more holistic perspective to writing. Given the highly demanding and unfamiliar social context of online collaborative writing, students in both groups seemed to have focused more on editing local mistakes, which did not put much load on their linguistic and cognitive skills. Nonetheless, it seems that students in the HTP group revised more content related problems compared to the second experimental group. This implies that more attention should be devoted to training students to focus on macro writing skills in online collaborative contexts (Ware and O'Dowd, 2008).

### **5-Scale of subsequent discussion**

The study results hinted to the fact that compared to the LTP group, the HTP group could engage more in frequent exchanges and discussions to negotiate peers' suggestions aiming at improving the text, in the teacher presence. Even if the teacher was not present, students could pursue negotiation to discuss their mistakes and test the accuracy and appropriateness of the suggestions provided by peers. This might have contributed to students' better performance on the writing posttest. On the other hand, the LTP group did not engage much in discussions regarding the revision process. Students either accepted or rejected their peers' suggestion, with no further negotiation or discussion. This might have deprived them from the chance of fully understanding the nature of their mistakes and honing their writing skills. Thus, current results suggest that teacher presence, even in part, might be vital to facilitate students' engagement in meta-language discourse at the local and global level, which can be conducive to their writing performance.

## **Reading comprehension**

Although reading comprehension was not explicitly targeted in the current study, it seems that both experimental groups have improved in reading comprehension, compared to the control one, as measured by the posttest. This progress could be ascribed in part to the time students spent revising the written content, negotiating meaning, guessing meaning of words, and delving deeply into details, to challenge their peers' ideas and edit their content. This chance was not enjoyed by the control group students, who seemed to have tackled their peers' texts superficially, and subjected them to revision only once, and were not exposed to such intensive ongoing mutual intensive revision process both experimental groups were exposed to.

Obviously, students were obliged to practice reading comprehension skills at many levels to be able to revise their peers' work, and hence provide appropriate suggestions that are somehow monitored by the teacher. This gives some support to the conclusion that online collaborative writing, unlike individual writing or face-to-face collaborative writing, can act as a catalyst to indirectly improve EFL students' reading comprehension. Notably, teacher's level of presence had no tangible effect on students' performance, as no differences could be detected between both experimental groups in reading comprehension. The effect of online collaborative writing on reading comprehension in general and inferential reading in particular was corroborated by previous research (Chen, 2008 and Yuhardi, 2014).

## **Learner autonomy**

Prior to the experiment, students admitted to their unpreparedness, and low motivation to indulge in the writing process. However, after the experiment, results showed that GD heightened treatment group students' sense of responsibility towards the task, and gave them a sense of ownership, independence, confidence, and enhanced their self-assessment skills. Evidently, no difference could be detected between both treatment groups in learner autonomy. It seems that the online collaborative experience in its entirety, helped to raise students' awareness of their strengths and weaknesses. Therefore, it can be suggested that, regardless of teacher intervention in the online milieu, language learners acquired the capacity to gradually narrow dependency on the teacher or peers and be more responsible for their own learning. A

similar pattern of results was obtained by Cox et al. (2015) and Xianwei, et al., (2016).

### **Students' perceptions**

Generally, data obtained from the survey showed that students were satisfied with the collaborative writing experience. This result ties well with previous studies (i.e., Aydin, 2015; Elola and Oskoz, 2010; Nicol, 2010; and Zhu, 2012). Students thought that everyone's strength was taken advantage of; even weak students participated by working on formatting and organizing the document. Students felt so enthusiastic, that they every now and then logged in to their GD projects to check whether or not they have received comments, either from peers or the teacher. In addition, as was evident from the students' responses, students in both groups found the editing activity beneficial, but challenging. This might be due the fact that writing on GD was a new experience for them. Moreover, students thought that their limited linguistic proficiency had made it difficult to write in their own words, understand peers' suggestions, and locate mistakes in writing. Furthermore, lack of confidence in their own ability to help others, uncertainty about peers' feedback, and the burden of editing their own work as well, were all obstacles that confronted students in both groups. This was corroborated by Ebener (2017) and Zheng et al., (2015).

Moreover, the study showed that students in the HTP had more positive attitudes towards the experience of collaborative writing. It seems that they felt more advantageous and appreciated the support provided by the teacher. This revealed the need to regulate students' participation in online environments. In other words, high teacher presence is important as it can substantially improve students' writing performance, and boost students' motivation towards writing. These findings are in accordance with results reported by Blair, (2015), Choi, (2014) and Cox et al., (2015).

### **Limitations**

In spite of the improvement noticed in the HTP group, it is clear that the present study is not devoid of limitations. First, there is doubt about the extent to which the findings can be generalized beyond the participants studied. The number of participants is somehow limited for broad generalizations and the participants were all female students. In

addition, students enrolled in this course were exposed to other types of language input, as they received training on other EFL skills, such as reading, which might have contributed to their progress. Second, formative evaluation of students' written performance was based on projects written and revised at home. This resulted in a less controlled research design, as the writing process might have been influenced by friends or other resources, beyond the researcher's control.

Another limitation has to do with the role of the researcher in the current study. Since the researcher played the double role of teacher and researcher, a lot of caution had to be taken to minimize subjectivity. For instance, the researcher's assistants were invited to carry out data analysis to ensure objectivity of the classification and data interpretation. Also, time constraints created another limitation, as the duration of the writing program was only three months, during which the participants had to learn how to write, how to provide peer feedback, and complete their writing projects. It is certain that with a longer time, results could be more valid and reliable.

Finally, plagiarism was also an issue. Given that students were allowed to use the internet, and considering their low linguistic proficiency, many students found it more feasible to copy verbatim from available resources. This was, to some extent, taken care of by utilizing available online plagiarism checkers, along with the researcher's discretion. Students were also instructed to spot any evidence of plagiarism in their peers' work. Therefore, future studies have to pay more attention to the issue of plagiarism in online writing.

## **Conclusion**

In conclusion, it would appear that the present study provided evidence for the effectiveness of online collaborative writing in developing students' writing skills, reading comprehension, as well as learner autonomy. Taken together, these results also suggest that students' gain in online collaborative writing context is transferrable to offline performance. From the results, it is clear that online collaborative writing can relieve students from the stress of dealing with writing as an individual responsibility, and, enable them to perceive writing as a collaborative endeavor, by playing the double role of revisers and writers, which augments their writing skills.

However, the study allows the conclusion that high teacher presence in online contexts is paramount in improving students' writing skills, especially for those whose language proficiency is not very high. Apparently, the teacher's constant presence, and persistent intervention, guidance and scaffolding may be a pre-requisite for online collaborative writing in EFL contexts. Without this intensive guidance on the teacher's part, students' writing skills may not improve much. As was argued, teacher guidance can be a compensatory mechanism that bridges the gap between peers' revisions and writers' competence level (Strijbos, et al., 2010; Blair, 2015).

On this basis, it might be concluded that teacher intervention relatively helped students pay more attention to writing skills at the global and local level. Interestingly, also, it seems that teacher high presence facilitated students' interaction, collaboration and reciprocal learning process, without undermining their autonomy as might be expected. One result worth considering here is that teacher intervention was more vital in determining students' delayed written performance than the revision process they were engaged in itself. In other words, this hints to the fact that students could benefit from explicit teacher online modeling, even if they did not engage fully in reviewing their peers' writing as well as their own work. Notably, in both groups, students were not competent enough in identifying errors in their own and in others' writing, as was clear from the large difference in the number of errors pinpointed by peers and those identified by the researchers. So it can be concluded that more practice should be provided to help students reap more benefit from the peer revision process.

Based on the previous results, some implications can be drawn. First, it is recommended that EFL curriculum designers and teachers adopt online collaborative writing to enhance students' writing skills, reading comprehension and autonomy. Substantially, also, it stands to reason that in order to significantly affect students' skills, EFL instructors are advised to make their presence felt in online environments, by addressing students at an individual level, modeling the revision process, resolving misunderstanding, and injecting necessary knowledge throughout the writing process. However, more attention should be given to global level skills, such as content and organization.

The results of this study suggest possibilities for future research. One suggestion is replicating the current study to address writing skills

for students of different linguistic proficiency. Future research could also examine if students' learning style, motivation and proficiency level can shape their response to online collaborative writing intervention. Moreover, given the impracticality of ensuring teacher's constant high presence in online contexts, needs emerge to conduct research to investigate the possibility of applying other more feasible styles of teacher's modeling and intervention in these virtual contexts. Substantially also, further studies can embark on the task of examining the direct correlation between students' online revision discourse and offline delayed written performance.

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