



**Implementing Peer Feedback to Improve Writing Process Facilitated by Google
Docs: An Action Research Study**

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Abstract

Peer feedback facilitated by Google Docs provided students with opportunities for practicing, interaction, communication, and reflection. This research study aimed at enhancing English language learners' writing skills to promote communication among them. The process involved five weeks of applying and practicing the stages of the writing process. Twenty-nine high school EFL students participated in the investigation. They had a A2 – B1 level of proficiency and faced challenges at writing complete and consistent paragraphs. The instruments were a pretest-posttest to measure students' writing improvement. Pre-post surveys were applied to collect the perspectives of students towards the innovation. Field notes were completed during the group tasks to analyze students' interactions and engagement in writing activities. The posttest scores were higher than the pretest scores, revealing a Cohen's $d= 2.98$. The findings revealed that this writing process helped learners improve the quality of their writing pieces. The collaborative use of Google Docs contributed to effectively increasing their self-confidence, communication, and motivation in writing activities. The study can provide positive considerations about the significant consequence of following a writing process in a peer feedback manner to help students improve the quality of their writings.

Keywords: Peer Feedback, writing process, Google Docs, high school level

Resumen

La retroalimentación entre pares facilitada por Google Docs aportó a los estudiantes oportunidades para la práctica, interacción, comunicación y reflexión. Este estudio de investigación tuvo como objetivo el mejoramiento de la destreza de la escritura del idioma inglés en los estudiantes para promover la comunicación entre ellos. El proceso implicó cinco semanas de aplicación y práctica de las etapas del proceso de escritura. Veinte y nueve estudiantes de secundaria participaron en el estudio. Tenían un nivel de A2-B1 y enfrentaban desafíos para escribir párrafos completos y consistentes. Los instrumentos fueron una prueba de inicio y final para medir el mejoramiento de la escritura de los estudiantes. Encuestas previas y posteriores fueron aplicadas para recopilar las perspectivas de los estudiantes hacia la innovación. Notas de campo fueron completadas durante las tareas de grupo para analizar las interacciones y compromiso de participación de los educandos en las actividades de escritura. Los puntajes de las pruebas posteriores fueron más elevadas que los resultados de la prueba previa que revelaron Cohen's $d= 2.98$. Los descubrimientos revelaron que el proceso de escritura ayudó a los estudiantes a mejorar la calidad de las piezas de escrituras y el uso colaborativo de Google Docs amplió efectivamente sus niveles de confianza, comunicación y motivación en las actividades de escritura. El estudio puede aportar consideraciones positivas sobre la consecuencia significativa de seguir un proceso de escritura a través de la retroalimentación entre pares para afianzar en los estudiantes la calidad de sus escritos.

Palabras clave: Retroalimentación entre pares, proceso de escritura, Google Docs, nivel secundario.

Implementing Peer Feedback to Improve Writing Process Facilitated by Google Docs

Learning a foreign language allows people to communicate and express emotions and thoughts (Lee, 2002). It also offers a large number of advantages and benefits, such as improving academic achievement, increasing cognitive development, and greater language and cultural attitudes (Palpacuer et al., 2018). Learning English lets learners interconnect in oral and written ways with people from all over the world in this new era of globalization (Naqvi et al., 2016).

Indeed, writing is considered an essential part of the language learning process (Harmer, 1998). As stated by Bérešová (2017), writing as a skill is significant for daily life communication. It is relevant to measure the students' writing skills and their capacity to organize structures and rephrase them on their own, taking an audience in mind. For Simin and Tavangar (2009), writing is a productive skill whose role is crucial in developing a language. Luchini (2003) acknowledged that writing skill sometimes takes place in an isolation way and it is a social activity where readers and writers get permanent interaction.

However, writing in a foreign language became unquestionably the most challenging language skill to enhance in academic contexts for language learners (Negari, 2011). Godwin-Jones (2018) pointed out that “the complexity of online writing environments has increased the need for both learner and teacher training.” (p.5). Widosari et al. (2017) as well stated that writing is more demanding than the other language skills; a study done at Thaksin University to 28 third year English-minor students showed that learners faced writing problems which impacts the quality of written production (Bennui, 2016), and Ecuador is not an exception.

The Ecuadorian Ministry of Education is aware of this situation and has taken some changes to enhance the foreign language subject in the country; one of the actions included the International Baccalaureate Program in the national curriculum (Ministerio de Educación, 2017). Unfortunately, this program ended for the public institutions in 2019 because of the country's economic situation. Ecuador was recognized as one of the Latin American countries with a high number of candidates inside the Diploma Program (International Baccalaureate Organization, 2013). This organization is a well-known learning program that promotes international-mindedness in learners by interacting with society to enhance a better education (Belal, 2017).

Furthermore, this program demands students to acquire a high level of writing production. Its assessments require creating different complex types of informal and formal texts (International Baccalaureate Organization, 2014). A research study done on ten first-year secondary International Baccalaureate students in the United States of America found that most of the students were capable of developing good writing skills after a rigorous program but still had weaknesses in the format (Fleming, 2016).

Despite that, a research study conducted on seventeen first-year Ecuadorian students of the International Baccalaureate program in a public high school assures that participants showed difficulties in writing skill before taking the external assessments (Pinela, 2020). According to Ortega and Auccahuallpa (2017), in a study research done in some public institutions in Ecuador, this country has the lowest results in developing writing skills compared to the other language components.

Moreover, a study research piloted among twenty intermediate Ecuadorian EFL students who belonged to the second course of the International Baccalaureate program in a public high school in Guayaquil - Ecuador, demonstrated that learners struggled

with the elaboration and organization of different written tasks during the development of the writing process (Cedeño, 2019).

A similar reality has been shown in participants in this research. Twenty-nine first-year International Baccalaureate (IB) students from a public high school of the Coast region of Ecuador considered writing one of the toughest skills to boost. Most of them were not able to write English texts successfully because of the lack of enough practice, interaction, and feedback. Some of these problems were: they misunderstood how to follow proper structures, organized information, inappropriate use of the coherence, the cohesion, the mechanic stages, and the lack of enthusiasm when they developed the writing skill. In order to address the IB written standards effectively, applying peer feedback in students' writing ability level production may be the choice to improve this language skill.

To fulfill these expectations, the global scale of the Common European Framework of Reference for Languages (2018) pointed out that at the B1 level, a learner should write different types of texts, such as essays. Besides that, students should share their ideas, opinions, reasons, and explanations of a related topic (Figueras, 2007). Thence, writing is considered a complex intellectual ability due to the implication of cognitive skill, punctuation, mechanics, grammar structure, and word choice in the target language (Ministerio de Educación, 2014).

Learning writing involves a variety of components such as grammar structures, organization, and understanding of its purpose (Graham et al., 2016). Thereby, feedback is a dynamic method to enhance students' development as independent learners to evaluate and modify their own learning (Ferguson, 2011). Through the use of collaborative work, learners enhance the generation and organization of information (Chang et al., 2018). According to Yu and Lee (2016), peer feedback is considered a

significant contribution to learn from peers developing a social and collective meaningful educational environment.

This study appeals to use a peer feedback strategy facilitated by a digital tool known as Google Docs as a solution to improve students' writing skills. According to Semeraro and Moore (2016), educators can use peer review and Google Docs to monitor and guide group instruction and collaboration to enhance students' writing process (p. 210). There are few studies that explored the role of peer feedback in students' writing essay performance online with positive results (Huisman et al., 2018).

Ebadi and Rahimi (2017) emphasized that in a research study done in a face to face classroom on ten EFL learners' academic writing skills, the peer editing through the use of Google Docs, highlighted the positive perceptions in the development of the academic writing skills and the impact of online peer editing, making significant changes in their learning process (p. 787). Nonetheless, a study reported technological issues presented in learners' writing education during the development of their academic performances (Alvarez, 2019). Indeed, the same author conducted research on EFL Ecuadorian high school students to investigate collaborative writing through Google Docs, obtaining favorable results in the learners' writing process.

However, there is a gap in research related to the strategy of peer feedback facilitated by Google Docs to enhance the writing process addressed to high schools learners in Manta, Ecuador. Despite the fact that integrating writing with technology positively impacts education, this study aims to improve the writing process.

Literature Review

This section provides studies and topics related to this study research which determines academic perspectives and connections with other authors' articles, theories, and overviews of the related area to the variables of this innovation.

Writing Skill

Writing is a significant language production skill considered a challenge, especially in English as a second language (ESL) writing contexts (Fareed et al., 2016). Writing skill allows learners to communicate their feelings and ideas on paper, organize their thoughts, beliefs, and knowledge into substantial arguments, and transfer meaning through a well-constructed text. Thus, young learners start writing step by step since their childhood and build and develop new skills in adulthood by elaborating complex sentences, paragraphs, letters, stories, and essays. Meanwhile, learners evoke more experiences in writing; they also get more knowledge of vocabulary, grammar, and advanced writing skills (Mukundan & Nimehchisalem, 2003).

English Foreign Language (EFL) students show positive attitudes, perceptions, interaction, and participation in developing their writing skills (Aydin, 2014). It is crucial to teach students that all skills have a process to reach a meaningful product, and it is based on: conceptualization, formulation, and articulation. Writing and the other skills follow these steps but include proofreading, editing, scaffolding, and providing feedback to understand better. The need to teach the cognitive complexity of writing emerges when the learners have acquired the ability to develop the writing process (Fidalgo & Torrance, 2017). According to Fareed et al. (2016), many factors affect learners' writing skill development, such as interference of L1, lack of motivation, instructions, feedback, and others.

Writing process

Writing is a process with an interaction between the writer and the reader (Celce-Murcia, 2001). Abbott et al. (2010) mentioned that the complexity of writing involves the acquisition of new knowledge, assimilation, reflection, planning, production,

adjustment, and a group of cognitive stages. Applying these processes can fail in anxiety and frustration if they are not well implemented (Maghsoudi & Haririan, 2013).

One of the main obstacles that a learner presents when writing is: translating into the mother language and not knowing how to start having disorganization and lack of ideas. For that reason, it is essential to provide prewriting activities to impact the quality of students' writing performances (Graham & Perin, 2007) positively. Ferris and Hedgcock (2014) pointed out that writing is "a type of system that combines semiotic, communicative, cognitive, and creative functions" (p. 5).

Faraj (2015) claimed that current methodologies support students' writing practices enhancing the writing process and providing writing experiences to learners avoiding the traditional process that focused on the final product. Consequently, the same author suggested the following five principal elements of the writing process:

Prewriting is the first part of the writing process. The writer can apply writing techniques like clustering or listing to gather and organize information and finally draw outlines for the topic to write. *Drafting:* during this stage, the writer has to highlight the main points and correct the writing mistakes. *Revising:* the writer can check the paper's content, such as vocabulary, grammar structures, and development of ideas, by discussing and checking it with the teacher and peers. *Editing:* The writer is able to correct errors in grammar, spelling, and punctuation, among others preparing the document for the final presentation. *Publishing:* In this last stage, the document has been exposed to many improvements to publish.

Essay

It is a piece of writing where clear ideas and concepts are organized in a particular academic way. According to Lindblom and Pihlajamaki (2003), learners could enhance essay writing by providing feedback in a digital learning environment. It is crucial to

mention that an essay has main stages to follow: *Introduction* where a brief overview of the essay is given and sum up the argument in one sentence called the thesis statement.

Body Paragraphs: The main body of the text explains the ideas in detail, then splits into other paragraphs, where clearly expose reasoning information and evidence. Finally, the *conclusion* where the writer summarizes the main key points and draws conclusions.

On the other hand, it is frequent to observe students who lack prior preparation that holds them back from writing essays (Flower & Hayes, 1981). According to Sample (2012), “student essays generally measure how well students conform to a standard model of essay writing far more than they measure students’ ability to think critically, explore complexity and ambiguity, and engage as learners.” (p. 89) Consequently, some learners got frustrated at each stage of the writing process due to the lack of motivation, received instructions, peer feedback, engagement, and interactive learning.

Thus, there is a clue to make students learn best, and it is to give a positive, enthusiastic, and supportive learning environment. Such an engaging environment provides clear learning goals, focuses on contexts that fulfill learners’ needs and interests. It allows students to become critical thinkers, takes risks, creates new knowledge, communicates opinions or ideas freely, and applies appropriate methods, strategies, and techniques to develop students’ skills. When a student is part of a motivating classroom, he/she feels a great enthusiasm in participating actively, even making mistakes, and in certain moments correcting them; the student learns more effectively (Young, 2014).

Message

The message in an essay must be neat, precise, respectful, polite, organized, concise, and straight to the point with appropriate use of punctuation, linking words,

spelling, follow a logical and adequate academic structure in order to get the readers' attention (International Baccalaureate Organization, 2014). Thus, Insley (2016) declared that the proper use of correct words contributes to a meaningful message received during the writing process. However, a careless, unscramble word choice produces miscommunication, confusion, frustration, and a lack of neat and clear messages.

Grammar and Mechanics

According to Calzada and Garcia (2021), grammar is defined as language structures well combined in order to create statements. It is also known as

a set of rules that explain how a system operates, and in language, this system typically refers to syntax (the arrangement of words and phrases to create well-formed sentences in a language) and morphology (the study of how words are formed in a language (p.12).

Türkmen and Aydin (2016) claimed that grammar boosts someone to be capable of communicating successfully in all the language skills.

On the other hand, mechanics deals with the rules of the writing process, such as punctuation, capitalization, and spelling. The combination of grammar and mechanics results in a formal message. It elicits organization and provides accuracy for the audience who receives the information. Students ought to be encouraged to practice written tasks at home as much as possible. The Common European Framework of Reference (CEFR; Council of Europe, 2018) offers a scale related to grammatical accuracy divided by levels that vary from A1 to C2.

Generation and Organization of Ideas

The complexity of the writing process and the interrelationships of its components have been studied for years.

Coherence: It is focused on the relationships among ideas in the writing process

which are joined to form meaningful discourse for learners (Lee, 2002). Besides that, Dontcheva-Navratilova and Povolna (2020) established that coherence is the acknowledgment of demonstration from cohesive procedures to unify statements or paragraphs in writings.

Cohesion: It is the logical connection of statements in academic writing.

This process is regarded as the grammatical and lexical interaction between them in the written production (Grabe & Kaplan, 2014). Likewise, they mentioned that “the aim of which is to conceptualize cohesion and coherence as constitutive components of human communication” (p.68).

Spelling: Garcia et al. (2010, as cited in Daffern, 2017) believed that “spelling in the English language is a process of integrating written symbols in conventional sequences (orthography) that represent speech sounds (phonology) and word parts that signal meaning and grammar (morphology)” (p.63). In addition, teachers who are knowledgeable using phonemes in words and adequate spelling instructions in tasks are more successful in teaching writing classes and meeting the objectives of the lessons (Puliatte & Ehri, 2018).

Capitalization: According to Shweba and Mujiyanto (2017), capitalization error is considered the most committed mistake in the writing process, followed by punctuation error and spelling error is the least one. Thereby, writing educators must focus their attention on capitalization, explaining, demonstrating, and clarifying and errors when they send written assignments to their students.

Theories that Support the Research

The following theories support the innovation and are explained in detail in this part of the research.

Process-Based Approach

The process-based approach to writing is related to the student's progression as writers where feedback plays a significant role in understanding the task. The goal of this method intended to assess learning is to make students feel comfortable, ready for sharing and developing their thoughts through writing; meanwhile, they receive peer feedback during the performance of the writing process (Sayed & Curabba, 2020).

Communicative Language Teaching

Communicative language teaching (CLT) can be defined as a group of principles about the aims of language teaching, different tasks that facilitate learning, how a student learns a language, and the main roles that teachers and students perform in the classroom (Richards, 2005). Consequently, Savignon (2017) declared that CLT is an approach that allows the comprehension of a language attached to individual identity and social behavior. The CLT approach "aims to make communicative competence the goal of language teaching and to develop procedures for teaching the four language skills, including listening, speaking, reading, and writing." (Alamri, 2018). Moreover, the same author highlighted that this approach creates the opportunity to develop fluent communicators and avid language speakers in high school learners. Toro et al. (2019) advocated that CLT encourages teachers and learners to play a meaningful part in a dynamic learning classroom. Additionally, Crawford (2002) cited CLT principles to emphasize engagement through collaborative work interaction resulting in effective participation and understanding. It stimulates the learning environment interest by using interactive and authentic materials and tasks.

Backward Design

Reynolds and Kearns (2017) defined Backward Design as a helpful method of designing learning tasks and instructional materials to use in class that develops learners' performances through a meaningful process to achieve the teaching goals.

Besides enhancing the ability to prioritize the contents of the planning, it also manages in a better way the time inside and outside the classroom, facilitating engagement, feedback, and comprehension on learners. Furthermore, Rea and Román (2019) identified backward design as a meaningful framework that allows creating proper action plans, choose practical resources, and assess through a performance task in a real context, suitable not just for learners but also for educators. As a result, teachers become more creative using methods and strategies to fulfill students' needs. That is why it is an appropriate tool to put in practice for public institutions whose students are frustrated with using textbooks in most English classes. Perkins and Salomon (1992) declared that the transfer of learning is the process of applying abilities, knowledge, or attitudes that were gathered in an experience to another learning one.

Peer Feedback

According to Yu and Lee (2016), peer feedback is considered a great contribution to learn from peers developing a social and collective meaningful educational environment. Thus, learners can share effective peer feedback the same as the teacher (Bijami et al., 2013). Vygotsky (as cited in Woolfolk, 2016) reflected that cognitive development in students is stimulated by the interaction of peers, family, and educators and the use of digital devices. Peer feedback is a fundamental part of academic writing development. It provides students with a different perspective by comparing other partners' work, assimilating new information, offering reflective observations, and building knowledge through meaningful comments (Huisman et al., 2018).

Additionally, Wiggins (2012) mentioned that feedback helps individuals achieve goals by improving the writing process. It is crucial to mention that collaborative writing advocates cooperative group work, highlights students' understanding's strengths and weaknesses, and generates a sharing atmosphere (Challob et al., 2016).

Yan (2019) mentioned that working in groups allows students to decrease anxiety and nervousness about writing and develop confidence in that skill. Nevertheless, certain students prefer giving and receiving feedback from their teachers instead of their peers because of their teaching experiences (Tsui & Ng, 2000). Huisman et al. (2018) stated that students could improve their writing performances by receiving peer feedback. Additionally, Wu and Schunn (2021) brought up that through peer feedback, students are engaged to quickly revise, edit documents, and improve their writing skills, increasing their output production.

Google Docs

Education has improved positively with the use of technology. Demirkan (2019) indicated that virtual learning environments inspire students to intensify their cognitive skills and desire to learn new information. Indeed, Google Docs is a technological tool that offers a great opportunity to enhance knowledge. Zhou et al. (2012) appealed that Google Docs is an online word processing collaborative learning application with such a great number of benefits to educational purposes. The relevance of Google Docs deals with its components, such as a word processor and a spreadsheet editor.

Regarding of motivation and engagement, Godzicki et al. (2013) advocated that Google Docs is a proper technology-supported learning environment, which persuades EFL learners to a motivational learning environment, developing their creativity and active feelings with positive instructions of the digital app.

Most of the teachers and students use this tool to overcome students' writing problems. Krasnova and Ananjev (2015) considered that it is not necessary to be inside the classroom to learn because students do not learn in the same way. For this reason, Google Docs has been selected as a technological tool to empower students' interaction and facilitate writing learning implementation. Nonetheless, Solano et al. (2017)

declared that technology is not frequently used in Ecuador due to the lack of application of technological devices in public institutions.

Debatably, the use of this sort of digital apps has its limitations in education. Zhou et al. (2012) mentioned that some students do not know the use of this technology, and it becomes a challenge to operate it. Moreover, the lack of success in working with collaborative groups online results in socio-dynamic issues among group members. Not all of them develop the knowledge, attitudes, and predisposition to work in collaborative works (Vallance et al., 2010). Therefore, educators should provide explicit and detailed class demonstrations in order to overcome these tasks difficulties.

Considering that students show complications in writing activities and the benefits of peer feedback facilitated by technological tools have demonstrated in a variety of studies; hence, this research study proposes the answer to these research questions:

- To what extent does peer feedback in the revising and editing stages facilitated by Google Docs improve students' essay writing?
- What difficulties do students have during this process?
- What are students' perspectives towards this innovation?

Description of the Innovation

Peer feedback and Google Docs were implemented in this innovation due to their impact on the teaching and learning process and explicit benefits informed in the literature review. This study was intended to help to improve the academic writing process in International Baccalaureate students.

The innovation lasted around five weeks (five hours per week), which equals twenty-five pedagogical hours. During the development of the study, IB students practiced the writing process by producing essays through Google Docs as a technological tool as a part of their external writing assessment.

To this end, learners already knew how to write paragraphs, use linking words, and punctuation. Students wrote essays on different topics in Google Docs focusing on the IB program curriculum to develop their writing skills. The production of these essays went hand to hand with the appropriate register. The researcher provided specific information on the stages to writing a correct essay to the students, so they were able to provide peer feedback to develop their writing.

The paired group and the researcher were able to provide comments, suggestions, editing, and corrections in the essays. The teacher's role was to guide, facilitate, supervise, and provide feedback during the whole writing process. Finally, students used the suggestions and peer feedback comments to rewrite their different kinds of essays.

Methodology

This section shows the research methodology used in this study and shares information about the participants' profiles. Furthermore, it describes the instruments, procedures, and validity-reliability of the instruments. To conclude, it mentions the ethical standards taken into account for this research study.

The major research approach for this study was action research since this kind of method of investigation is used to collect information in the educational process to enhance teaching methods and overcome teaching and learning issues (Sut et al., 2018).

Participants

The sample consisted of 29 students, 19 females and 10 males selected among International Baccalaureate students from the first Baccalaureate at a public high school in Manta. These students had a higher degree of commitment to their studies. The students' ages ranged from 16 to 17 years old. Their mother language is Spanish, and they are required to have a B1.1 language proficiency level (Ministerio de Educacion,

2012). They took a proficiency test online platform called MM Online Placement Test (2018) for the purpose of this innovation. The results showed that four students were A1, thirteen students A2, ten students B1, and two students B2.

Instruments

This action research involved analysis of quantitative and qualitative data, and the instruments applied for the study were: pre and posttest, a checklist, a survey, and field notes.

Pre and posttest.

This instrument answered research question one (improvement in students' essay writing). At the beginning of the research, participants took a pretest to know the average score in the class and a posttest to know if the innovation applied with the sample had an impact on students' learning process. The pre and posttest consisted of one question each. Students had to write an essay about Global Warming and why it affects the environment, cyberbullying, and how it affects teenagers' lives. Students also followed a rubric to strengthen the development of their essays. The rubric evaluated the generation, organization of ideas, and answering the information requested on the prompt. In the end, students used Google Docs to post their writings where they showed the collaborative work through peer feedback. (Appendix A, appendix B, and appendix C)

Checklist.

This instrument answered question two. It helped the researcher test the stages of the academic writing process of students' essays. The checklist consisted of eight different statements about the stages of academic writing process of an essay where students had to identify if their work are following these essential steps meanwhile they were developing their essays in Google Docs. They were related to brainstorming to

generate ideas, an outline to organize the stages of the essay development, an introduction stating the hook, thesis statement, supporting details, and conclusion, 3 body paragraphs with their main ideas, supporting details, and their respective conclusion statements, a concluding paragraph to summarize the main points of the essay, appropriate use of linking words in each paragraph, effective use of punctuation, grammar, spelling, coherence, cohesion and unity in order to meet international baccalaureate writing standards (Appendix D).

Field notes.

For this instrument, field notes were used to collect the data required. The researcher observed students' behavior during the class and their attitude towards the tasks in daily sessions. (Appendix E)

Survey.

This instrument answered question three. Participants took a survey before and after the innovation and it helped the research to know what students' perspectives towards this innovation were. Participants determined their perceptions from statements regarding the advantages and disadvantages of using peer feedback and Google Docs to enhance their academic writing process (items 1 to 5) and the importance of peer feedback (items 6 to 10). The survey included a Likert scale that contained strongly disagree (1), disagree (2), agree (3), and strongly agree (4) options. The survey was adapted from Haris et al. (2017) in which it was added extra information in the statements columns template according to the topic researched and an open question related to the feedback received by peers. (Appendix F)

Ethical Standards

Ethical aspects are considered to guarantee the transparency of this research study, promote and encourage moral values such as respect, responsibility, cooperation, transparency, and fairness.

The data was not manipulated or falsified; the information provided was confidential since the candidates were underage students. The participation of the students was free and voluntary with the consent of their parents. Furthermore, the researcher got the permission of the high school authorities to apply the sample innovation with the IB students.

Data Analysis

RQ1: To what extent does peer feedback in the revising and editing stages facilitated by Google Docs improve students' essay writing?

Participants took a pre and posttest to get the results from this research question in which the researcher obtained the maximum, minimum, median, and standard deviation using an Excel spreadsheet at first to collect all the data. Numbers gathered were coded in the Statistical Package for the Social Sciences (SPSS) for analysis and interpretation. Moreover, the Cohen's d showed a positive result, it was also proved with the difference in means; therefore, the impact in the innovation was high.

RQ2: What difficulties do students have during this process?

Field notes were taken to analyze students' behavior and the researched organized the information data by coding the categories, for instance: questions, feelings, and difficulties. Likewise, a checklist was collected in order to analyze the stages of an academic process of students' essays, they were filled once a week during the implementation and the data was tabulated and entered in the SPSS software to gather the frequencies of each component related to every single steps of the process.

RQ3: What are students' perspectives towards this innovation?

A survey was chosen to answer this question.. A Likert scale survey was taken at the beginning and end of the implementation period to analyze participants' perceptions of this innovation. The data collected was organized quantitatively and entered in the SPSS software to obtain the frequencies and compare the results of the surveys. Cronbach's alpha was run to calculate the reliability of the survey.

Results

RQ1: To what extent does peer feedback in the revising and editing stages facilitated by Google Docs improve students' essay writing?

Table 1 shows the values of the pretest and posttest: standard deviation, and effect size. The effect size value ($d=2.36$) is considered a significant effect. Data from the pretest displays a mean of 5.38 ($SD=1.61$). Opposite to that, data collected from the posttest indicates a mean of 9.24 ($SD=0.87$). The p-value was 0.001, so the results are statistically significant and favorable due to the intervention and not to any other variables.

Table 1

Pre and posttest descriptive statistics

Pre and posttest descriptive statistics					
	N	Mean	Std. Deviation	Effect size	P-value
Pre-test	29	5.38	1.61	2.36	0.01
Post-test	29	9.24	0.87		

RQ2: What difficulties do students have during this process?

Field notes and a checklist were taken to identify students' behavior. The researcher coded the categories, for instance: feelings, difficulties, and questions. It was observed that when students were working on different tasks and did not know how to use a checklist, they felt frustrated and immediately asked for help. Some of the

observations were that students could not continue doing the different tasks where they did not understand the stages of the writing process, making it challenging to organize their ideas.

The researcher observed that students struggled with the tasks because they had a high level of anxiety when writing since they lacked vocabulary, misspelling words, organization, and generation of ideas. Moreover, the teacher’s feedback was more expected than peer’s feedback. When they worked on writing essays, they had to recognize the stages of the writing process, it was difficult for them at first but then they got familiar with this kind of exercise. Organizing ideas played an essential role in this study since it helped students put everything in order and it was reached by practicing their writing using their peer feedback.

Table 2

Checklist about academic writing process

		PRETEST	POSTTEST
No	Stages of Academic Writing Process of an Essay	YES	YES
1	A brainstorming strategy to generate ideas.	30%	80%
2	An outline to organize the stages of the essay development.	10%	90%
3	An introduction, stating the hook, thesis statement, supporting details, and conclusion.	25%	95%
4	Body paragraphs (3) each one has a main idea, supporting details, and conclusion, stating the main points of the thesis statement.	20%	95%

5	A concluding paragraph summarizing the main points of the essay topic.	15%	95%
6	Appropriate use of linking words in each paragraph.	10%	90%
7	Effective use of punctuation.	5%	80%
8	Grammar, spelling, coherence, cohesion and unity.	10%	80%

A checklist was conducted with a total of 8 answers. Table 2 shows that the innovation had a positive impact because there is a big difference with the pre and post results. Overall, there was an improvement for each category but the one that had a significant impact was in statements 2 – 5 and 7 since students did not have a clear idea on how to use punctuation nor an outline to organize the stages of the essay development.

RQ3: What are students’ perspectives towards this innovation?

A Likert scale survey was taken at the beginning and end of the implementation period to analyze participants’ perceptions of this innovation. Table 3 shows the results of the pre and post-survey. The mean evidenced from the pretest (3) and posttest (3.96) that students felt more capable of organizing their ideas, writing more precisely and accurately, and using rubrics to evaluate other students’ work.

Table 3

Survey about student’s perception.

	Mean Pre-Survey	Mean Post-Survey

Q1. Writing essays using Peer feedback facilitated by Google Docs made me more careful about paragraph structures.	3.2	3.7
Q2. Writing essays using Peer feedback facilitated by Google Docs made me check word choice more carefully.	2.5	4.1
Q3. Writing essays using Peer feedback facilitated by Google Docs made me check word spelling more carefully.	3.7	4.4
Q4. Writing essays using Peer feedback facilitated by Google Docs made me check capitalization more carefully.	2.1	3.7
Q5. Writing essays using Peer feedback facilitated by Google Docs made me check punctuation more carefully.	3.4	4.5
Q6. Writing essays using Peer feedback facilitated by Google Docs could motivate me into more dynamic interactive writing.	2.8	2.9
Q7. Writing essays using Peer feedback facilitated by Google Docs could increase my interest in writing.	3.2	3.7
Q8. Writing essays using Peer feedback facilitated by Google Docs could provide me more confidence in writing.	3.7	4.3

Q9. Writing essays using Peer feedback facilitated by Google Docs could improve the quality of my writing.	3.1	4.1
Q10. I enjoyed writing essays using Peer feedback facilitated by Google Docs.	2.7	4.5
Q11. Peer feedback facilitated by Google Docs enhanced my English proficiency.	3.4	3.9
Q12. Peer feedback facilitated by Google Docs enhanced my interaction with peers.	3.5	4.5
Q13. Peer feedback online helped me to improve my essay.	3.1	3.7
Q14. I felt comfortable when I provided peer feedback to my partner's paper.	2.6	3.2
Q15. Peer feedback made me work independently.	2.4	4.8
Q16. I could provide peer feedback based on a rubric.	2.6	3.5

Overall, there is an improvement in the results' means of the pre and post-survey. Students at the end of the intervention felt more capable of creating better texts, as observed in statements 2, 3, 5, and 8. Furthermore, statements regarding Peer feedback learning improved pre and post results, as observed in statements 4, 9, 10.

However, some items had not had much difference as in the pre-survey. For instance, in items 1 and 7, there was not much difference; because students know that if they receive the feedback from others they will improve on the different skills in a

language as for this case in writing using Google Docs. Besides the 16 questions that students were asked, there was an open question related to peer feedback significance where students indicated that feedback is usually given by the teacher, but it is relevant to give peer feedback because in that way they help each other and work collaboratively, for instance, when they forgot about misspelling words, capitalization, the hook up and topic sentence, among others. In addition, they become more autonomous in their learning and there was a lot of interaction between them.

Discussion

The finding results significantly have shown the unimaginable benefits of implementing peer feedback to improve students' writing process facilitated by Google Docs. It was supported in the theory of Semeraro and Moore (2016) who mentioned that writing teachers encourage their students to use peer review and Google Docs as an effective assessment tool to monitor and guide group instruction collaboration for enhancing students' writing process. The goal was reached since participants demonstrated improvement in their writing skills due to the implementation of peer feedback and the integration of the digital application.

Furthermore, students had a significant change in their writing skills due to the pieces of writing activities demonstrated the integration of organized and well development of ideas in the writing stages of a particular academic essay through the monitoring of peer feedback and Google Docs technological app. As mentioned in Lindblom and Pihlajamaki (2003) who stated that learners can enhance essay writing by providing feedback in a digital learning environment.

In regards to the first question, the results determined improvements during the application of the implementation generating a better organization of the students' ideas, spelling, capitalization, punctuation, mechanics, and grammar structures helping them

to apply effectively the digital tool and the collaborative pair work feedback to develop a great performance task. The findings demonstrated that learners enhanced their collaborative writing skills obtained better scores when they applied the innovation comparing to the previous results of the study. Wu and Schunn (2021) supported this statement since they declared that through peer feedback and a digital app students can develop their output production meanwhile they are involved in the writing stages, that is why students were engaged in promoting feedback, revising, editing, and improving their learning experiences using Google Docs app.

According to the second research question, this research study confirmed that students felt frustrated and anxious recognizing the stages of the writing process and getting familiar with the innovation at the very beginning of the application. The use of this sort of digital apps has its limitations in education. Zhou et al. (2012) declared that for some learners to operate this kind of technology is a challenge. In addition, the collaborative groups online results sometimes difficult to handle among group members due to the little knowledge about technology and internet issues. According to Vallance et al. (2010) not all the students have the susceptibility to work in collaborative groups without any guidance. For this reason, the researcher suggested to provide explicit and clear instructions, giving enough guidance, appropriate resources, demonstrate with examples or templates in order to overcome this education issue.

Finally, for the last research question, this study has shown that the participants felt confident using rubrics to evaluate their partners' work, their anxiety and nervousness were low and almost disappeared, they were capable of organizing their ideas more precisely and accurately. Vygotsky (as cited in Woolfolk, 2016) pointed out that cognitive development is generated through the interaction of peers and the use of technological devices. As well as, Huisman et al. (2018) highlighted the crucial

involvement of practicing writing through the use of peer feedback by sharing comments, transferring learning, understanding information, assimilating evidences, and reflecting observations in a meaningful way. Therefore, students' perceptions towards the innovation were positive due to motivation, empathy, and engagement in the writing process increased satisfactory after the application of this implementation.

Conclusion

This innovation took five weeks of implementation and after that time, the pre and posttests, the checklist, the field notes and the pre and post surveys demonstrated that most of the learners improved their writing process. This research study showed a significant impact on students due to the writing skills development, recognizing the stages of writing an essay, generating and organizing ideas, using proper grammar, mechanics, and clear messages.

This study highlighted the students' perspectives as evidences of the implementation communicating their feelings, opinions, and behaviors towards the innovation. Moreover, students got a considerable variety of knowledge about new cultures, topics of interest, and worldwide vocabulary. The importance of implementing peer collaboration facilitated by Google Docs in the innovation proved to have effective and meaningful results since this application motivated the active interaction and collaboration among peers ideal to get students' attention, target language development, and an adequate virtual learning environment.

Overall, this pivotal action research helped learners to meet the standards and to achieve the goals of the Ecuadorian learning context and the International Baccalaureate Program, developing in the students the positive mindset to work engaged and meaningfully, fundamental features to enhance the language learning process. This present research study was conducted in a public institution with a group of 29 IB

participants, it could also be implemented in order to improve the writing process among other schools with diverse learning English levels of education.

Limitations

Despite the fact that the positive results of the implementation, some limitations should be considered when implementing this innovation for future studies. They are mainly focused on the limited access of technology, short time to carry out the research study, shortage of devices or resources, internet issues, teachers and learners' predisposition to apply the strategy. In fact, the lack of computer labs and internet in the public schools became a great challenge in this innovation, some students experienced internet issues outside the classrooms and did not work properly with their written tasks. Similarly, some learners informed that they found Google Docs complicated at the moment of using this app because they got troubles to include feedback comments in their partners' essays.

Recommendations

The author of this study highly recommend to include an interview as an effective instrument to collect more reliable data and empower statistical results about students' perceptions towards peer feedback facilitated by Google Docs in the development of the writing skills.

Another recommendation is to work with a proper internet connection to strengthen the ability of using Google Docs and sharing feedback so students have the opportunity to invest their time in a better way. Additionally, future researchers are able to apply this strategy in order to develop other English skills.

Likewise, this innovation should have extra hours of instructions to avoid challenges and possible limitations of developing writing skills. Participants could receive previous instructions to handle the application properly and demonstrating the

Running head: ONLINE CLUSTERING TO IMPROVE WRITING TEXTS

benefits it offers to the users. Although, future researchers should include more alternative learning websites to engage students in the teaching process.

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Appendix A
Pretest Template

Available upon request.

Appendix B
Post Test Template

Available upon request.

Appendix C
Rubric for the Essay

Available upon request.

Appendix D
Checklist

Available upon request.

Appendix E
Teacher's field notes

Available upon request.

Appendix F
Survey

Available upon request.

Appendix G
Lesson plan

Available upon request.