Use of Self-Assessment with the Support of a Technological Tool to Improve Writing

Skills

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Skills

Writing needs to be measured constantly, and it is very difficult for the teachers to give feedback to all the students in every activity, for this reason self-assessment helps students in each stage of their productive skills (Febriyanti et al., 2018). Therefore, it is necessary for students and teachers to have another tool, a mechanism in which students can check their progress, identify the mistakes, correct them, edit the file and go on. Higher Education students in the city of Babahoyo find it hard to write, even in Spanish, much more in English.

Self-assessment is the first step in any process, whether people want to create something new, develop a new product, start a company or learn a new language, people need to continually self-assess themselves. Wong and Mak (2019) said "Self-assessments are instructional tools with the potential to enhance self-regulatory and language-learning processes in students in the writing classroom." (p. 183). This statement encompasses the importance of self-assessment, and the author's thoughts about self-assessment in the writing process.

The use of a technological tool serves students to improve their different skills. The use of a tool that helps them to improve their tasks before be graded, makes students feel more confident with their process (Lievens, 2018). In this case, the Hemingway app allows students to check and also edit their compositions, indicating when they have solved the problem and if it is correct in its context.

The present study had the goal to determine how self-assessment, with the support of a technological tool, improves writing skills in college students. The participants were students of the third level in a Language Center in a public higher institutional education in

Babahoyo. The research had a sample course to compare with the course where the innovation was applied.

Literature Review

The variables described in this section involve meanings and previous research. The dependent variable is writing skills, and the independent variable is self-assessment. This section contains positive and negative aspects of implementing the proposed strategy with higher education students.

Writing

Writing is one of the productive skills, according to Sreena and Ilankumaran (2018) "The learners who possess efficient productive skills are able to produce something" (p. 670). Arslan and Benzer (2022) said "Word flies; the text remains. The expression reveals the importance of writing in the history of science, especially within the scope of science lessons, in reaching the present day" (p. 90) Writing value goes beyond a specific subject, in the learning process for all specialties it is indispensable students produce new ideas, and the best way to share those new ideas is across the writing.

But its value does not make it easier, Durga and Rao (2018) and Batalla and Vera (2019) expressed that writing is the most complex of the four skills, because the cognitive activities require to demonstrate control of variables simultaneously. These difficulties lie not only in creating and organizing ideas, but also in transforming these ideas. When people talk about communication, it does not only focus on isolated ideas, this message could be readable and have a message. Klimova (2012) defined it like "Writing is essential. It brings about a lot of advantages since it helps to express one's personality; develop thinking skills; make logical and persuasive arguments; give a person a chance to later reflect on his/her ideas and re-evaluate them" (p. 9).

Self-Assessment

Self-assessment could be used in very different fields and situations, Rahayu and Purnawarman (2019) citing Moss and Brookhar (2009) expressed "By learning from given formative feedback, students learn the value of review, revision, reshaping of work for improvement" (p. 102). Students' self-assessment gives to them the opportunity to learn from their mistakes, and go beyond and correct them. McMillan and Hearn (2008) said "Student self-assessment can promote intrinsic motivation, internally controlled effort, a mastery goal orientation, and more meaningful learning. Its powerful impact on student performance... empowers students to guide their own learning and internalize the criteria for judging success." (p. 40).

Every novelty has its benefits and challenges, self-assessment is not the exception. One of the best benefits of using self-assessment in the writing process is the opportunity for the students to learn from them and correct the mistakes immediately, learning in the process, and making more accurate their following compositions.

Normally, students are not prepared to self-assess themselves, and the process of train and engaging them is tough, it is for this reason that motivating them to follow the process is essential. Ventista (2018) asserted that it is a waste of time, more if students do not apply it correctly.

Self-assessment presents challenges for both teachers and students, it is important to apply it accurately, if students do not know how to do it correctly, they will shrink instead of improving their writing skills. Galbraith et al. (2008) concluded that

The following must be taken into consideration for effective self-assessment:

1- Effective self-assessment should be based on a clear understanding of the practical learning outcomes,

2- Self-assessment should include knowledge, behaviors, and skills outcomes,

3- The students should regularly obtain external validation of their self-assessment activities. (p. 23).

Similarly, Rolheiser and Ross (2001) expressed: "the teacher defines a rubric for the students and shows them different samples to illustrate the concept" (p. 10), this idea gives an example of how it is possible to use self-assessment more appropriately.

Self-Assessment to Improve Writing

Research made by Fathi and Khodabakhsh (2019) measured the impact of self-assessment in improving writing performance, according to these authors "The findings of this study revealed that the use of self-assessment … activities contributed to enhancing the argumentative writing competence of the participants." (p. 4). The results of this study showed that self-assessment significantly improved the learners' writing performance and their global language abilities.

Widiastuti (2018) conducted a research where students apply self-assessment after interacting in a weblog, the results showed that "Their improvements in writing aspects were mainly in formulating ideas, organization, word choice, figurative language, sentence fluency, convention and presentation. Those aspects of writing ability certainly should be continuously improved." (p. 42).

Fahimi and Rahimi (2015), in their research about the impact of self-assessment practice on writing skills, found that "The results suggest that self-assessment instruction has equipped learners with the knowledge of how to plan and revise their essays. Self-evaluation helped students to evaluate the progress of their writing and the ability of writing" (p.735).

Backward design

This innovation was applied after checking the issues that students present with writing in English as a Second Language, this comes from the term "backward design". Understanding by Design is an approach to designing a curriculum that allows instructors to focus on the

desired learning outcomes and provide structure for student learning (Wiggins & McTighe, 2005).

Innovation

The innovation consisted of students applying self-assessment and using a technological tool. The technological tool highlights lengthy, complex sentences and common errors, allowing students to correct them and showing when they have their compositions amended. About this technological tool, Tso (2020) said "As the Hemingway app scans the written, it grades the readability of the term paper. Like an English teacher, the app improves learners' writing by doing the plagiarism check, grammar check, contextual spelling check, as well as vocabulary enhancement" (1097).

Students were introduced to the use of the Hemingway App and self-assessment, the technological tool did not present a challenge for the students, most of them applied it without any difficulties, and the others could apply it after two or three examples. Learning self-assessment was more difficult for the students. After the first week of class, and different activities, students accomplished to apply self-assessment effectively to their compositions.

Research Methodology

The innovation was applied to an experimental course, and also it was used a control group to measure the improvement of the students using the innovation. The control group followed the backward design, but students did not apply peer or self-assessment.

The methodology of this study, applied to the experimental group, was action research, according to Barcelona (2020) "Action research is a cyclical process that may be used to improve instructional practice, assessment tools, and student outcomes with focus on specific problems which usually take place in the natural setting of a classroom, laboratory or school" (p. 517). Thus, this action research was applied to college students, they were

introduced to self-assessment and Hemingway App to improve writing skills. The present

research looked to answer:

1. Does self-assessment with the support of a technological tool (Hemingway APP)

influence Writing skills in third-level college students compared to students of the same level

who were not taught using self-assessment or a technological tool?

2. How do students feel about this innovation?

Participants

This research was applied to students of the third level in the Language Center of a

higher educational institution, it is located in the province of Los Ríos, because of its address

in the middle of the country, it is chosen by students of other provinces like Bolivar, Cotopaxi

and the north of the province of Guayas. The third level students are in the range of 19 to 21

years old mostly. The research was applied to two courses, each of which has 52 students.

Innovation was applied to one of these courses (experimental group) and the control group

received the teacher's feedback without the use of peer or self-assessment. This was done to

measure the difference in the improvement of the students after using the innovation, both

courses have the same kind of students. The total of the students in each course completed the

pre and posttest.

Instruments

Rubrics for Writing

The innovation started with a pretest and ended with a posttest applied after two

weeks practicing with the innovation. Both tests were applied to both courses and were

graded using the rubrics, the activities applied are described in Appendix one.

Mahmoudi and Bugra (2020) explained that "The use of rubrics in assessing the

writing performance is very popular. In general, educators in universities use rubrics for a

more accurate assessment of students writing performance" (p. 150). The rubrics in this study

were applied by the teacher, it was graded on 5 different scales: format and structure, content, vocabulary, grammar, and spelling; each one has five levels: Exemplary (over two points); between exemplary and developing (over 1,5); Developing (over 1 point); between developing and emerging (over 0,75 points); and emerging (over 1 point). The total of the writing section was over ten points. The full rubric can be seen in Appendix two. The rubric was designed to follow the principles of backward design. It was vetted by an expert in the field at Universidad Casa Grande.

The pretest and posttest consisted of a composition of five lines, where students have to use the simple past and past progressive grammar tense to describe their last vacations.

After the posttest, a survey was applied to the experimental group, where students answered 10 questions about the process, it had 4 multiple choice questions, 4 rating questions, and 2 open-ended questions. The questions were about self-assessment, how they feel about the process, the Hemingway App, and the results obtained.

During the process also was taken field notes, the researcher wrote down his observation about the students' progress and most relevant points, it was not used an specific format to take the field notes. The results of the survey and the field notes are going to be analyzed to answer the second research question: how do students feel about this innovation? Survey information and the notes taken by the teacher, would clarify the students' feeling during the innovation process.

Data Analysis

The results obtained are going to be analyzed in two different aspects, one is comparing the pretest and posttest of each course, and secondly, it is going to be analyzed the results of the posttest comparing experimental group with control group. The following descriptive statistics were obtained: mean, minimum, maximum, mode and standard deviation. Also, it was applied the *t-test: Two-Sample Assuming Equal variances* in Microsoft

Excel using the Analytics Tools Pack. Derrick (2017) expressed that "a test statistic that makes use of all available data, taking into account both paired and independent observations could be useful." (p. 123). The importance of this kind of descriptive statistic is also aligned with Maravelakis (2019) who said "The first step in any statistical analysis is the use of descriptive statistics to present the data and try to identify any kind of trends, relationships or abnormal behavior" (p. 89).

The survey and the field notes are going to be analyzed using the content analysis, the answers given by the students in the multiple-choice questions, rating questions, and the open-ended questions gave information concerning to how students feel about self-assessment and Hemingway App.

Ethical Considerations

Beforehand the implementation of this innovation, it was asked for the authorization of the director of the Language Center of the higher educational institution, who gave the permission. In this study was not necessary to ask for parents' authorization because all the students were adults. It was informed to the students of the innovation, and they agreed to participate, it was not necessarily written permission because of the condition of adults of the students, avoiding the problem identified by Huang et al. (2007) "Seeking individual informed consent may lead to serious selection bias and may compromise the external validity of the research if the consent pattern is not uniform" (p. 2).

It was explained to all the participants that their names and personal information are confidential and will not be given in this research. Also, it was requested student's honesty. Students receive previously the innovation a lecture about the trustworthiness of the results only if they be completely sincere. All of them agreed with the instructions and committed themselves to participate in this innovation doing their best effort.

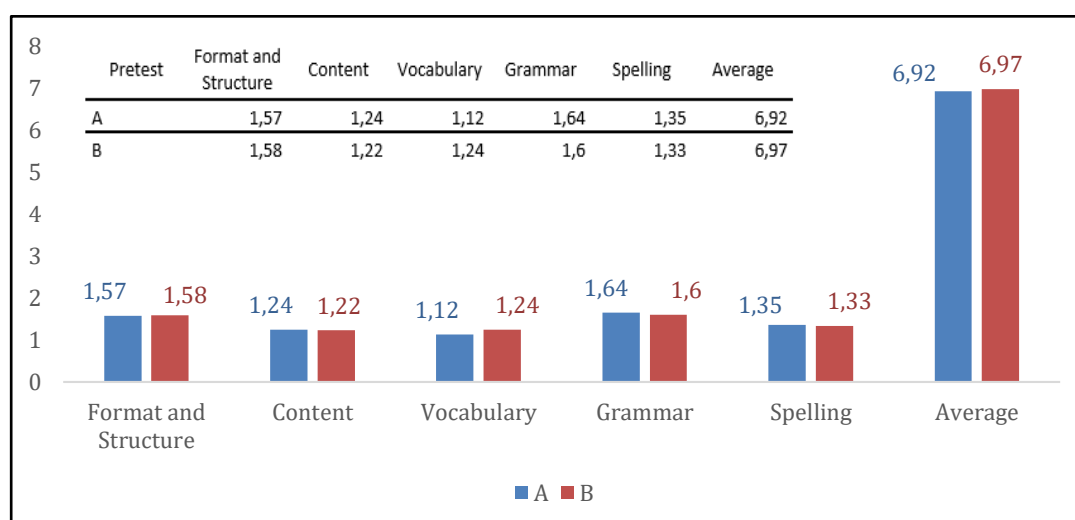**Results**

Pretest Scores

Experimental Group

The pretest result of the experimental groups showed results according to the level expected of the students, the average of the course was 6.92 over 10, the maximum grade was 9, and the minimum grade was 4.5. In this case, the median was 7. The component where the students faced more problems was vocabulary, where the mean was 1.12 over 2; and the component where students obtained better results was grammar, in this case, the mean was 1.64. Similar to the median, the mode also was 7.

Control Group

The pretest results of the control group were very similar to the results of the experimental group, the average of the course was 6.97 over 10, the maximum grade was 8.5, and the minimum grade was 4. In this case, the median was 7. The component more difficult for the students was content, where the mean was 1.22 over 2, but it is necessary to clarify that the vocabulary component was very near, with a mean of 1.24 over 2; and the component where students obtained better results was grammar, in this case, the mean was 1.6. Also, in this case, the mode is similar to the mean, the mode was 7.

Figure 1

Pretest courses scores

Pretest	Format and Structure	Content	Vocabulary	Grammar	Spelling	Average
A	1,57	1,24	1,12	1,64	1,35	6,92
B	1,58	1,22	1,24	1,6	1,33	6,97

Note. Pretest scores were very similar in both courses, each component and the
average are alike.

Posttest Scores
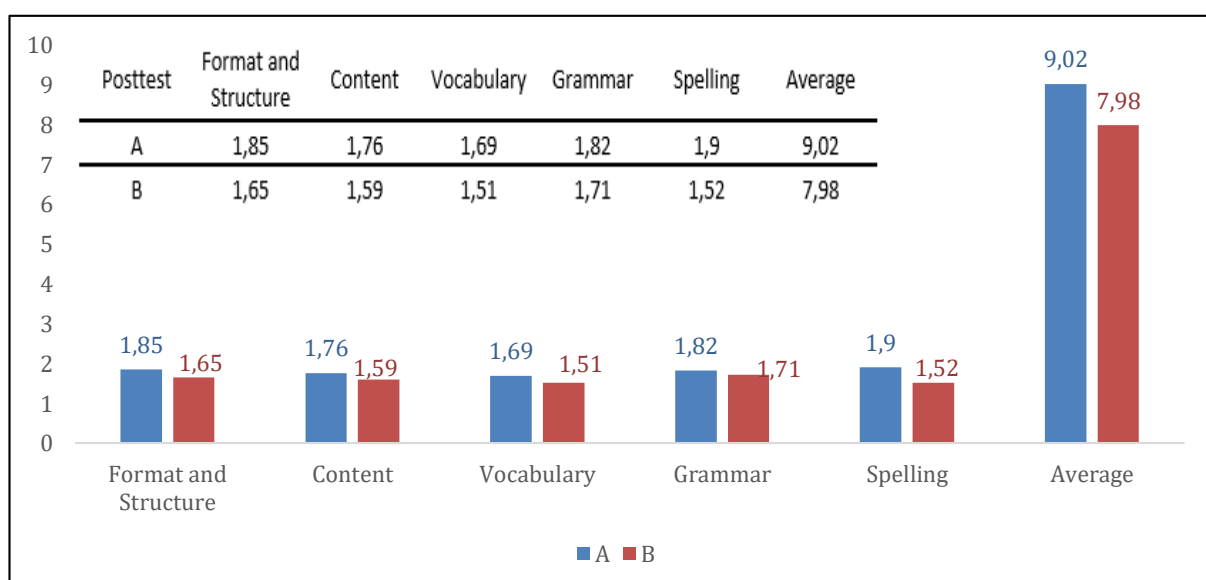
Experimental Group

The results after applying the innovation were very satisfactory, the mean was 9.02,
which indicates an increase of 2.1 points. The maximum grade was 10, and the minimum was
8.25. After the innovation, the component with better results for the students was spelling,
with a mean of 1.9 over two, and the component that obtained the worst result was
vocabulary with 1.69; although it was the worst component, it showed an increase of 0.57
points, it means more than 50% better after the innovation. The mode was 9, similar to the
mean, and the same as the median.

Control Group

The results in the posttest were very similar to the statistics results of previous years,
the average increase to 7.98, which means an increase of almost 1 point. The maximum grade
was 9.5, and the minimum was 7.75. The component with better results for the students was
grammar, with a mean of 1.71 over two, and the component that obtained the worst result
was vocabulary with 1.51. In this test the mode was 7.75, slightly lower than the mean and
median.

Figure 2.

Posttest courses scores

Posttest	Format and Structure	Content	Vocabulary	Grammar	Spelling	Average
A	1,85	1,76	1,69	1,82	1,9	9,02
B	1,65	1,59	1,51	1,71	1,52	7,98

Note: The posttest shows a marked difference between both courses, the control group

average is 13% below the average of the experimental group.

Statistical Comparison of Courses A and B

A *t-test: Two-Sample Assuming Equal variances* was used to explore the research

question, "Does self-assessment with the support of a technological tool (Hemingway APP)

influence Writing skills in third-level college students compared to students of the same level

who were not taught using self-assessment nor a technological tool?". The null hypothesis is

that "There is no difference between the use of self-assessment and a technological tool

against teaching writing using only teacher assessment." And the alternative hypothesis is

that "The use of self-assessment and a technological tool, improve writing skills."

The *t-test: Two-Sample Assuming Equal variances* identified a statistically significant

difference between the posttest scores of both Courses. It was taken the posttest of the control

group like variable 1, and the posttest results of the experimental group like variable 2. The *t*

stat value was -11.22, and *p* is smaller than 0.001; establishing a null hypothesis of 0,

consequently, the test results support the alternative hypothesis.

Table 1.

t-test: Two-Sample Assuming Equal variances

	Variable 1	Variable 2
Mean	7.980769231	9.019230769
Variance	0.134426848	0.310897436
observations	52	52
Pooled Variance	0.222662142	
Hypothesized Mean	0	
f	102	
T Stat	-11.2215771	
P(T<=t) one tail	8.17338E-20	
t Critical one tail	1.659929976	
P(T<=t) two-tail	1.63468E-19	

| t Critical two-tail | 1.983495259 |

The Value of *t* is -11.22; it was rejected the null hypothesis, consequently, the alternative hypothesis is accepted. The use of self-assessment and a technological tool, improve writing skills in college students of the higher educational institution.

Qualitative Results

The innovation faces two important aspects, the use of self-assessment and the application of a technological tool to improve writing skills. Both circumstances directly change the mode of how students learn. The self-assessment was rejected by some students at the beginning, some of them found it difficult to apply the rubrics and evaluate themselves objectively. After some exercises, the results obtained by their classmates made that the reluctant made an effort. Finally, the self-assessment was welcome by all the students of the experimental group.

The Hemingway App faced similar challenges, at the beginning, some students declined the use of this tool, and the difficulties of the use of this app on a cellphone made them feel annoyed. In this case, after practiced several times, all the students understood the importance of a technological tool to help them in the self-assessment process and learned how to use this app on cellphones, without hitches.

The survey applied to the students showed that motivation increased with the use of self-assessment, and the support of the Hemingway App gave the students more confidence to get better results. Almost all the students gave excellent grades and comments about the innovation. One student said, "the self-assessment allows us to develop critical thinking, it was an excellent study that gave tools to use all our lives". Another student commented, "self-assessment is good, but it is difficult to apply, Hemingway App helps us to correct our compositions and write better".

The qualitative results obtained let us be optimistic about the use of self-assessment and a technological tool to improve writing skills. Students used both strategies and also applied them in some exercises where the teacher did not tell the students to use self-assessment or Hemingway App. This shows a good perception of the students of both strategies. This was reinforced by the results of the posttest; students improved their grades significantly in almost all cases.

Quantitative Results

According to the results obtained, the differences in the posttest results between experimental and control group are very different, the mean of the posttest in the innovation course was 9.02, while the mean of the posttest of control group was 7.98. All the components of the rubrics have a greater improvement in the experimental group. All these results, the descriptive statistics, and the *t-test: Two-Sample Assuming Equal variances*, suggest an important improvement using the innovation.

The *t-test: Two-Sample Assuming Equal variances* provided evidence that self-assessment significantly improved writing skills. This aligns with the theories of self-assessment and backward design. If students provide themselves feedback and use a tool to correct and edit their compositions, they are going to improve their writing skills, also, they are going to feel more confident writing.

Discussion

Several authors have written about the difficulties but also its importance. The productive skills give a sense in the communication process. During the innovation, the experimental group enhanced their writing skills, self-assessment and the support of a digital tool, make them feel confident and in the capability to create compositions. This aligned with the results provided by Widiastuti (2018). His results showed that self-assessment improved

aspects like formulating ideas, organization, and sentences fluency. Likewise, students in this experimental group presented similar results.

The self-assessment process is not easy, first of all, people have to be aware that make mistakes, and they need to check their own work and improve it. Moss and Brookhar (2009) cited by Rahayu and Purnawarman (2019) show that through self-assessment, students learn the value of review, revision, reshaping of work for improvement. McMillan and Hearn (2008) talk about the intrinsic motivation, internally controlled effort, a mastery goal orientation, and more meaningful learning as a result of apply self-assessment on the learning process. Fathi and Khodabakhsh (2019) said that nowadays, self-assessment can reduce anxiety and raise autonomy in students. All these ideas were contrasted in the research, self - assessment gave confidence to the students, and not only in the writing skill, make them apply it in the other skills, knowing that they are going to obtain better results.

Prior to this research, self-assessment was not applied by the students in the writing process, it was applied the teacher feedback. Self-assessment triggered self-confidence in students. According to Fathi and Khodabakhsh (2019) self-assessment improve learners' confidence and increase learner-focused instruction. Fahimi and Rahimi (2015) in their research found that self-assessment instruction equipped learners with the knowledge of how to plan and revise their essays, correct them and get better results. This was confirmed in this research; students use self-assessment and supported their process with the technological tool, following the process they improved their writings and accomplished the rubrics provided.

Conclusions

"Writing is essential", this quote have been analyzed by several educators, researchers such as Klimova (2012), Durga and Rao (2018), Batalla and Vera (2019) and many others accord with this statement. Writing presents a lot of benefits, and students' motivation and confidence are important to develop this extremely difficult skill. The results obtained in this

research showed that self-assessment, with the support of a technological tool, improves

writing skills in the students of the third level in a public higher educational institution in

Babahoyo.

The results obtained by the students in this innovation, and the information given by

them in the survey showed that they feel more motivated to write, self-assessment enhance

their writing skills and give them the confidence to generate compositions more smoothly.

Likewise, the field notes showed the evolution of the students, how they improved their

writing skill and felt more confident during the development of the innovation.

Obviously, the control group presented an improvement from the pre-test to the

posttest (1.01 mark better between pretest and posttest). But if it is analyzed the improvement

of all the components in the tests, it is possible to determine that the innovation improved

students learning process. All the students that took part in the research developed some of

the components in a very good way, clearly not all the students got the best grade in their

exams, but the enhancement makes students feel well with their effort.

Limitations

The innovation was applied only to one course, and the other course analyzed

belonged to the same teacher, it would be better to apply the innovation in different courses,

of different teachers to measure the improvement of the innovation without considering only

one teaching methodology. The virtuality of the current education was not the best scenario

to measure the use of a technological tool; a lot of students did not have the appropriate

devices or internet access to use technological tools in the best way.

In the next semesters, it would be possible to use the university resources and labs by

students, to apply the technological tools, all in the same possibilities of internet access and

devices used. Also face to face classes would help students to learn better about the self-

assessment process, with the opportunity to have teacher support in the same classroom during the synchronous session.

Recommendations

The implementation of self-assessment would be better analyzed with different students and courses, taking into consideration the methods applied by different teachers in the course of the innovation, and in the course where it will not be applied. If the educational system comes back to the face to face classes, students would have better resources to apply self-assessment. The use of technological tools also would be better if students have the support of the university.

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Appendix 1

Lesson Plan

Available upon request.

Appendix 2

Rubrics for Innovation

Available upon request.

Appendix 3

Consent Letter

Available upon request.

Appendix 4

E-portfolio link

Available upon request.