Expanding Vocabulary through Quizlet to Improve Students' Writing

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Abstract

This research reports the expansion of technical vocabulary through group work facilitated by Quizlet to improve students' writing. This study was conducted at a public technological institute. It involved ten students from the Plastic school. They had to reach a B1.2 level of English to decode books and fill out forms. However, they were an A1 level and they could not write simple sentences. With this previous information, this innovation was carried out. The study addressed three research questions: 1. To what extent will the introduction of CLIL improve students' writing of simple sentences using technical vocabulary? 2. Will group work improve students' technical vocabulary range? 3. What are students' perspectives towards the innovation? A pretest, a posttest, a survey, and a rubric answered these questions. The data determined a significant and notable expansion of vocabulary. Students' writings also improved. At the end of the innovation, the data analyzed showed a large effect size of Cohen's $d = 0.85$. The results suggested that this action research may be helpful for technical students, researchers, and authorities who want to improve writing through the expansion of vocabulary.

Keywords: technical vocabulary, writing, Quizlet, group work, CLIL

Resumen

Esta investigación informa el incremento de vocabulario a través de trabajo en grupo en la herramienta tecnológica Quizlet para mejorar la escritura de los estudiantes. Este estudio se realizó en un instituto público tecnológico, con la participación de diez estudiantes de la carrera de plásticos. Los estudiantes tenían que alcanzar un nivel B1.2 de inglés para decodificar libros y llenar formas. Sin embargo, ellos están en un nivel principiante, en el que no pueden escribir oraciones simples. Con este antecedente, la innovación fue llevada a cabo. Se abordaron tres preguntas de investigación. 1. ¿En qué medida la introducción de CLIL mejoraría la escritura de oraciones simples usando palabras técnicas? 2. ¿Podrá el trabajo de grupo mejorar el rango de vocabulario técnico en los estudiantes? 3. ¿Cuáles son las perspectivas de los estudiantes con relación a la innovación? Pruebas al comienzo y al final, una rúbrica y una encuesta contestaron estas preguntas. Los datos estadísticos determinaron un notable y significativo incremento del vocabulario al término de la innovación, así mismo los estudiantes obtuvieron mejores resultados en sus escritos. Al final de la innovación, la información evidenció un gran impacto de la innovación de Cohen $d = 0,85$. Los resultados sugieren que este estudio puede ser útil para estudiantes técnicos, investigadores y autoridades que deseen mejorar la escritura a través de la expansión del vocabulario.

Palabras claves: vocabulario técnico, escritura, Quizlet, trabajo en grupo, CLIL

Expanding Vocabulary through Quizlet to Improve Students' Writing

Around the world, English is a crucial element for professionals to accomplish and reach their goals. Among several authors, Shrestha, Pahari, and Awasthi (2017) considered English as a global lingua franca. At this time, people use English as a tool rather than a language. They need it to communicate and accomplish different roles in several fields. There is a variety of ways people can succeed in the use of English. Harmer (2004) remarked that writing gives students the advantage to transfer their thoughts in a written way to communicate effectively.

On the other hand, specialists of content and language integrated learning (CLIL) agree that the four language skills are not the primary focus in a specific purpose language class (Yemelyanova, Avazbakiyeva, Ibrayeva, & Aikenova, 2016). They emphasized students need to exhibit a wide range of academic skills like reading in a specific academic field, listening to a teacher's lecture, writing academic papers, and discussing or presenting their ideas or research.

After applying a writing test to ten students from the first term of the plastic technical career at a public technological institute in Guayaquil, it showed that there was a low performance in vocabulary. They did not have a good knowledge of technical words. Students in the institute where this study took place attend classes to be technicians in different careers. The students-participants of this research were from the Plastic school. They had to accomplish a good level of English to decode books and fill out forms, however, they were in an A1 level based on a proficiency test taken. These antecedents promoted this innovation. It involved individual and group work to learn technical vocabulary and to develop writing skills with the aid of Quizlet. These components were included to motivate students in the process of learning a foreign language for professional purposes.

CLIL has been recently considered, as one of the core approaches in teaching EFL (English as a Foreign Language). Europe was the first continent that started the teaching of a subject through another language into practice. In the Latin American context, it has not been widely studied. There are two research studies in Ecuador that have been conducted in primary and secondary schools (Serrano & Chica, 2017); there is one conducted at a higher institution (Bergmann, 2017); none has been documented at a technological level. Bergmann concluded that the CLIL group outperformed the non-CLIL group in reading, researching, and writing.

The Ecuadorian regulation (Consejo de Educación Superior, 2017) has considered the Common European framework as a reference to set standards. It is important to highlight that English is not part of curricular subjects. In addition, the participants of this study must reach a Bl.2 level before their last academic term. This is a requirement to graduate. Consequently, future technicians need to learn English not only to fulfill a requirement, but also to be active members of a global society. To certify that level, the institution demands that students take a final examination.

National standards for writing for an A1 level indicate that students can create informational, illustrative, and switchable texts that can be a continuous group of simple sentences and details, as well as demonstrate a variety of vocabulary and sentence structure. These standards also urge teachers to include technology in their classes (Ministerio de Educación, 2012).

Regarding education and technology, Alqallaf (2016) highlighted the power of technology for learning. The use of cloud computing is beneficial in education. This technology allows students to have current learning experiences regardless of the hardware they use to access content. Authors like Hasan (2016) emphasized that

education instructors must be in line with 21st century needs. Technology is one of those.

Lee and Hannafin (2016) stated that technology enhances knowledge and understanding. It also encourages students to be engaged in the learning process. However, it can improve students' learning only when the goals for students are clearly articulated before the use of technology. Elega and Özad (2017) concluded that one of the ultimate goals to combine technology and education is to promote students' learning. It is a useful strategy to involve students in the process of learning a language. However, a doctoral study implemented by Hasan (2016) remarked that changes depend on the resources and policies of the institutions. These changes can be adopting innovative or different teaching practices, innovate small-scale classroom activities, or the implementation of a new curriculum.

This study was conducted at a technological institute. Participants were enrolled in the first semester of the plastic school. The main motivation was they needed to develop fundamental skills that started with decoding instruction books about plastic material in English to better understand the elaboration of plastic products. Authentic content was applied to meet this purpose. In this regard, acquiring technical vocabulary is an integral part of subject learning (Bravo & Cervetti, 2009). Technical vocabulary was introduced. The same authors suggested that students should master different learning steps through their first and second language since, this combination allows them to study L2 (second language) vocabulary learning in direct contrast to L1 (mother tongue) knowledge.

It is important to mention that students collaborated among themselves to increase learning and to raise motivation during the learning process. This inviting atmosphere gradually incremented their practice of the language. According to Yu (2013), the

learning context involved not only the humans in it (administrators, professors, and classmates), but also the classroom environment.

Literature Review

Content and Language Integrated Learning

This research took as a reference the CLIL approach, which helps students to gain the language needed to manipulate content from other subjects. According to Mehisto, Marsh, and Frigols (2010), CLIL is a tool to teach and learn content and language that has its essence in the integration of both with a dual focus:

1. Language learning is included in content classes in a manner that gives students facilities to perceive meaning through different tasks, such as charts, diagrams, and experiments, among others.
2. Content from subjects that is used in language learning classes where the language teacher works with other subject teachers to incorporate vocabulary.

These two focuses are necessary for students to acquire language and to have a general notion to apply the concepts. Mehisto, Marsh, and Frigols (2010) indicated that there were three forms of CLIL:

- **HARD CLIL:** Implies teaching and learning focus on the subject content.
- **SOFT CLIL:** Soft version implies a focus on teaching and learning the language. This CLIL variant refers to taking "topics from the curriculum as part of a language course" (Bentley, 2010, p. 6). This means that CLIL focuses its teaching and learning process on language and learning and teaching content are secondary.

- **MID (OR COMFORTABLE) CLIL:** Focuses on teaching lesson subjects, or parts of subjects, via a foreign language with dual-focused aims, where learning is a combination of both language and content.

This study focused on the mid or comfortable CLIL. Because of the necessity to understand technical words and fill out forms, the participants have to learn both the language and the content. Lasagabaster and Doiz (2016) concluded that CLIL groups, when compared to control groups in EFL classes, had better results in English proficiency.

Writing Skills

Writing "like playing an instrument" requires the power of conventional and innovative ideas. Kellogg (2008) emphasized that learning how to write a coherent, useful text is a protracted and challenging effort of mental ability development.

Intensive practice is required to be an expert or to develop this skill as well as a strong motivation to become better at it. This process allows people to become keen on the communication process. In the same manner, Johnstone, Ashbaugh, and Warfield (2002) concluded that advanced writing abilities have a strong correlation with repetitive practice, guidance, and training in the professional field, which is of great interest to students. Furthermore, Stevens and Levi (2005) stated that setting a rubric is essential to transfer student's purposes and to give them help while embarking on writing tasks. At the same time, the rubric lets students get better results, provide or receive effective feedback. Moreover, Feng-Checkett and Checkett (2006) concluded that a learner who writes well will have favorable outcome in his profession.

To write accurately, learners have to organize and connect their ideas and linguistic range and purpose (Ohlrogge, 2009). Additionally, Colovic (2012) stated that

the improvements the learner reaches in an academic year are aligned with the use of formulaic sequences.

Group Work

Learning in groups promotes better acquisition of learning and understanding. When students work in groups, they grasp the information for a longer time than when they get the data individually (Barkley, Cross, & Major, 2005; Davis, 1993). Barkley et al. (2005) suggested designing a plan for a course where every member of the group feels satisfied and fulfills their needs.

The teacher has to develop different and original ways to support all of the members and avoid inactivity. According to Elega and Özad (2017), social constructivism promotes the teacher's role as a facilitator, who cultivates interactive social environments, which fosters real-life learning opportunities, and allows learners to personalize, exchange, collaborate, and construct their knowledge. Working in groups can develop student`s conviction and easily let them make progress in learning.

Technical Vocabulary

Vocabulary comprehension should be guaranteed to extend strong knowledge of technical terms (Schmitt, 2008). Franciosi (2017) mentioned that the use of games as a proof of significant impact on lexis improvements is usually measured by the data obtained with vocabulary that evidence retention of words. Schmitt (2000) indicated that in few words our way of thinking of vocabulary is transferred in multiword combinations. In other words, communication is produced when a set of words are put together to transfer information. These words are formed by the combination of various phonemes that comprise the language.

One important element to mastering a new language is input. Nation (2001) highlighted that acquiring vocabulary is crucial for an effective use of a second

language. This author added that it plays a significant role in the construction of complete spoken and written texts. Therefore, vocabulary supports the process of writing.

Quizlet

Quizlet is a tool that provides engaging and buildable vocabulary activities. It helps teachers to guide students to practice and manage different content to be taught. This e-tool applied different procedures such as learning with flashcards that include meanings. Beyond these practices, students have the opportunity to prove their knowledge by completing definitions through writing and practicing spelling as well as testing their learning with different type of quizzes. To support the learning process, students have the advantage to play vocabulary games in groups (Lander, 2015; Sanosi, 2018).

Kroneisen and Bell (2018) concluded that depending on the adaptive memory framework, context is the key to determine the survival benefit of an item. In addition, Cornillie, Thorne, and Desmet (2012) pointed out that the use of games to the process of L2 learning is evident in traditional media language teaching. Quizlet provides the opportunity to mix various ways to practice vocabulary in groups. In addition, it has different activities that vary in the level of difficulty. This is an excellent advantage for teachers who can address different learning styles. Students have the opportunity to interact and solve problems individually and in groups.

Despite the benefits of using Quizlet in and out classrooms, it is necessary to highlight that students tend to concentrate on the game and, how to solve it, and not on the real learning objective.

Student's Perspectives

An effective learning background considering the importance of the effects mediated by students' perceptions about the learning environment concluded that suitable administration in facilitation provides successful results during the learning process (Könings, Brand-Gruwel, & Jeroen, 2005). In addition, Can and Walker (2011) stated that convictions and perspectives are useful to develop skills. The survey showed that participants in this study felt satisfied with techniques and methods used to help them acquire technical vocabulary and to improve writing.

Because of students' lack of knowledge of technical vocabulary and needs for improvements in writing, this study addressed three research questions that showed the improvement of student's technical vocabulary and writing through group work facilitated by Quizlet:

1. To what extent will the introduction of CLIL improve students' writing of simple sentences using technical words?
2. Will group work improve students' technical vocabulary range?
3. What are students' perspectives towards the innovation?

Innovation

This study allowed ten students from the first term of the plastic technical career at a public technological institute in Guayaquil to practice and acquire technical vocabulary and phrases in different ways in and out the classroom. Quizlet was chosen to facilitate several vocabulary activities. Students used Quizlet individually, but they also worked in groups of five to exchange information. The final product was to develop a user's manual of their innovative plastic product. Students had to list the required plastic materials and write simple steps to guide the users of the manual.

Charts and drawings were also strategies that students developed in small groups. All students had the possibility to comment on their classmates' writing in the classroom when they used the charts during the development of the user's manual. To provide feedback to other groups, they used a rubric. The aim was that students realized their own mistakes and improved their work.

Two teachers were involved in this process: The English teacher, who focused on accuracy and structure of the writing; and, the expert in plastic, focused on the process of the creation of the plastic product. Both teachers provided help to all the groups by coaching them. The language teacher checked and showed the students the way to employ terms accurately and also to organize their ideas coherently. On the contrary, the expert guided students to choose the right materials and to use the correct processes.

During the first week of the implementation, the English teacher gave students some questions about plastic materials. Students discussed different kinds of plastic materials they know. Then, they read a text about the advantages and disadvantages of plastic. They brainstormed ideas on how it changed the world. After students got into the topic, they had the chance to practice vocabulary and technical phrases taken from a glossary they received at the beginning of the course.

The technical vocabulary was displayed in different ways using Quizlet. First, students reviewed words; then, they had the opportunity to practice them; and finally, they played games in collaborative groups. Games were applied for three purposes: to create a comfortable atmosphere, to have students interact among one another, and to keep track of their understanding.

Students also had the opportunity to practice their spelling and improve their writing through Quizlet. They supported one another during the games that the application provided. Students interchanged meanings and connected ideas. This

constant practice developed in the innovation helped them improve. This was a starting point towards the final product (user's manual of a plastic innovation). In the middle of the process, students applied technical vocabulary accurately by first sharing ideas about designing a plastic object.

Later on, they wrote a draft of their innovative plastic object. In the draft students listed the materials and explained the process they needed to create their user's manual of a plastic innovation. The purpose was to demonstrate their understanding of the plastic materials by using technical vocabulary properly when writing.

After these first steps, students created an innovation in plastic using the terms and technical language learned by developing a user's manual. Students assumed the role of designers. To this purpose, they applied technical words and phrases following the correct processes in simple steps guided by the English teacher and an expert in plastic. See a detailed plan in Appendix A.

The English and the engineering teacher provided feedback to all the groups to help them with the process of their innovation. Both teachers scaffolded the writing process. The teachers modeled each stage for students, providing examples and encouraging participation.

Methodology

Participants

This study was addressed to ten technical students from the first term of the plastic technical career at a public Technological Institute in Guayaquil. Their ages ranged from 19 to 25. There were six women and four men who were at the A1 English level based on the Common European Framework of Reference (CEFR).

Instruments

This study is an action research which applied quantitative instruments for data collection. The instruments considered in this study were a pre-test, post-test, a rubric and a survey. To start with the study, participants completed a pre-test (see Appendix B). The first test helped the examiner to know students' previous knowledge.

A post-test (see Appendix C) was applied to measure if there was progress or not, and if students fulfilled the objectives of this study. Moreover, this test answered questions one and two of this study:

1. To what extent will the introduction of CLIL improve students' writing of simple sentences using technical words?
2. Will group work improve students' technical vocabulary range?
3. What are students' perspectives towards the innovation?

Both tests focused on a performance task stated by the teacher, which was assessed by a rubric (see Appendix D). The rubric emphasized the sequence of the text, organization of the plan, and use of technical vocabulary. Participants and the two teachers used the rubric during the innovation and at the end. Performance indicators of the pre and post-tests aligned from 1 (*below standard)* that marked the lowest score, to 4 *(above Standard)* that marked the highest. The descriptors of each indicator were done with the help and administration of the English director area, who validated the rubric before its final application. The information included in the rubric answered the second question.

At the end of the implementation, students carried out a survey (see Appendix E), that was chosen to answer this research question: *What are students' perspectives towards the innovation?* This questionnaire has a Likert scale that goes from strongly disagree to strongly agree. These options allowed each range to be ranked. There were 10 items in total. Items included perspectives of students towards group work, the use of

the rubric, the writing of a manual, feedback, and the e-tool. The survey was in English and Spanish due to participants' proficiency. Cronbach's alpha was run to determine the reliability of the survey. The result was 0.89. This score is interpreted as having a good reliability.

Data Collection and Analysis

The data were collected from the instruments: a pre-test, a post-test, a rubric and a survey conducted at the beginning, and at the end of the study. The results determined the impact of this innovation. To this end, descriptive statistics were run (minimum, maximum, mean and standard deviation). They were obtained after the codification of the compiled information in an Excel spreadsheet and then transferred to the SPSS package program. This information was used to get the effect size in an online calculator. To show validity and reliability in this study there was an expert in plastic supporting the teacher in charge of the innovation.

Ethical Standards

The researcher asked and obtained the permission from the director to apply this innovation with the technical students. Likewise, students were notified that they would participate in this implementation to expand their technical vocabulary and to improve their writing. Nevertheless, all the data obtained was confidential and the names of the participants were not revealed.

Results

The data were analyzed based on the three research questions determined in this study. Question 1: To what extent will the introduction of CLIL improve students' writing of simple sentences using technical vocabulary? Question 2: Will group work improve students' technical vocabulary range? And Question 3: What are students' perspectives towards this innovation?

Table 1 reports the results of the pretest and posttest. It is evident that there was an increase at the end of four points in the highest grade (maximum) and two points in the lowest grade (minimum). The mean of the group is higher than the passing grade (7).

Table 1

Pre-test and post-test results

Instruments	N	Minimum	Maximum	Mean	Standard deviation
PRE-TEST	10	3	6	4.20	0.789
POST-TEST	10	5	10	8.00	1.414

These results were used to get the effect size of the innovation which was Cohen *d* = 0.85. It demonstrates that the implementation had a significant impact on learning. In conclusion, this study assisted student in improving their technical writing through the expansion of plastic-related vocabulary.

Table 2

Results based on the rubric components

Components	N	Pre-test mean	Std. deviation	Post-test mean	Std. deviation	Effect size
Sequencing	10	1.40	0.52	2.10	0.88	0.43
Organization	10	1.60	0.70	2.50	0.85	0.50
Use of Technical Vocabulary	10	1.20	0.42	3.40	0.70	0.88

The researcher applied the rubric to guide students to follow the right text sequence, the organization of the plan, and the correct use of technical vocabulary. Both the English and the Specialize teacher as well as the participants used the rubric during the innovation to provide feedback. At the end, teachers graded students' final

product with the same instrument. Performance indicators in the rubric were aligned from 1 (*below standard),* that marked the lowest score, to 4 *(above Standard)*, which marked the highest. The total was 10 points. Table 2 shows that the highest impact of the innovation was for the use of technical vocabulary.

To answer research question three, related to students' perspectives, a survey was applied. Table 3 summarizes the minimum, maximum, and mean that students gave to each item. There were 10 items in total.

Table 3

Results of survey.

	N	Minimum	Maximum	Mean	Std. Deviation
1. The introduction of technical vocabulary helped me to write simple sentences.	10	3	4	3.90	.32
2. The Quizlet tool was an interesting and effective way to expand my technical vocabulary.	10	3	4	3.70	.48
3. Writing a user's manual was a difficult task to be developed in class.	10	3	4	3.90	.32
4. Group work helped me to improve my writing in English.	10	4	4	4.00	.00
5. Teachers' and classmates' feedback helped me to understand the project.	10	4	4	4.00	.00
6. Group work encouraged my learning process.	10	3	4	3.80	.42
7. Group work produced independence.	10	3	4	3.90	.32
8. Based on a rubric I can set and organize my ideas in writing.	10	3	4	3.90	.32
9. Working in groups helped me realize my own mistakes.	10	3	4	3.80	.42
10. I can provide feedback to my classmates based on a rubric.	10	3	4	3.80	.42

The ten participants filled out the survey and their comments favored this innovation in all aspects: group work, the use of rubric, teachers' and classmates' feedback, and the e-tool. Results indicate that all students agreed that group work helped to improve their writing. An unexpected result was that they consider feedback from teachers and classmates was a key element to understand the project.

Same results were reported in students' written comments. They pointed out that thanks to the techniques and the guide of both researchers they improved their writing. Also, they considered the use of Quizlet was beneficial because of their progress in the use of technical vocabulary. They were enthusiastic after the process because they noticed their progress in their writing, they also became more familiar with the use of technical vocabulary.

Discussions

Regarding the results in the present study expanding vocabulary through Quizlet to improve students 'writing using technical words, they were promising.

Question 1: To what extent will the introduction of CLIL improve students' writing of simple sentences using technical words? CLIL is considered as a tool to combine content and language. In this research, the mid-CLIL was applied (Mehisto, Marsh, & Frigols, 2010). Results confirmed that this dual focus improved students' writing using technical vocabulary. Moreover, students recognized in the survey that the assistance and feedback of both teachers supported their learning.

Schmitt (2000) indicated that our manner of thinking of vocabulary is transferred in multiword combinations, in other words combining various terms, students can originate communication. The participants' improvement was noticeable and was evidenced in their writing process, where they organized and followed a sequence of steps using the technical vocabulary introduced and practiced. Furthermore, Johnstone,

Ashbaugh, and Warfield (2002) concluded that good writing abilities have a strong correlation with repetitive practice, guided, and trained in the professional field, which is of great interest of the students. Results and comments provided in the survey reinforced what these authors concluded.

Question 2. Will group work improve students' technical vocabulary range?

Barkley et al. (2005) suggested that learning in groups promotes better acquisition of learning and understanding. They also remarked that designing a plan for a course where every member of the group feels satisfied and fulfills their needs. The researcher of this study kept in mind that it was essential to pay attention to every participant's needs because it allowed them to grasp the meaning of words easily and encouraged them to write better. Working together made the participants felt comfortable at the moment of practicing and writing at their own pace.

Elega and Özad (2017) maintained that social constructivism promotes the teacher's role as a facilitator, which builds up teamwork and facilitates real opportunities. In this study the teacher facilitated students' work by providing a rubric and teaching them to use it to improve their work by both self and peer feedback. After the innovation, students improved their writing based on the rubric. The rubric was a guide for students and at the moment of using it they had a clear idea of how to connect their ideas coherently as well as to concentrate on choosing appropriate technical vocabulary.

Question 3. What are students' perspectives towards the innovation?

Könings et al. (2005) and Can, et al. (2011) mentioned that it is important to consider students` perceptions about the learning environment and how it affects the development of their skills. In this innovation, students made positive comments regarding having two teachers working to guide their process, and group work

facilitated by Quizlet. The combination of these elements supported students' improvement of their writings and technical vocabulary usage. Some authors recognized the power of technology for knowledge, learning, and understanding (Alqallaf, 2016; Lee & Hannafin, 2016). According to students' responses they agreed with these authors.

Conclusions

Deliberate training and practice were the primary elements for the students' process acquisition of their writing skills in this research. Participants got expertise in writing through the expansion of technical vocabulary using Quizlet. After the innovation students obtained better results in their writing.

The use of the rubric during the innovation guided the students to write properly, following the correct sequence and organizing their ideas. This rubric designed by the researcher guaranteed the effectiveness in writing because students obtained and provided feedback. It was used to assess a user's manual. By following the parameters in the rubric, they felt confident and comfortable at the moment of writing.

Likewise, the process was always monitored by the teacher in charge and the expert in plastic, who supported the English teacher to supervise the content of the innovation. Other elements that contributed to students' learning and success of this innovation were the several practices on Quizlet, the writing process developed on charts, individual and group feedback. At the end, participants felt they were familiar with technical vocabulary, which was a requirement in their studies. They also commented that they could communicate their thoughts better through their pieces of writing.

As a final conclusion, results of the survey supported the study. It showed students' positive perspectives to the main elements implemented. Students included favorable comments and scores to all items.

Limitations

One of the limitations encountered in this study was the participants' ability to figure out how to use the learning Quizlet e-tool. First time, it caused a problem because the ten participants had different levels in typing abilities. Despite this, the researcher worked with the students coaching them individually and teaching them how to use every item of the e-tool. Additionally, most participants did not have internet at home nor in class. However, the researcher shared the internet connection with all of them to facilitate their learning process.

Time was also a limitation. The data collected was during the semester, however there were some difficulties in the planned schedule and the time for the innovation was reduced. Their poor level of English was a challenge in this study. They were in A1 level when they started the innovation. Nevertheless, they improved their writing by expanding their technical vocabulary through Quizlet. A last limitation was the sample of the participants, there were few students in this major to develop the activities.

Recommendations

The researcher recommends the following:

1. It would be better to work on student`s abilities in the use of technology and teach them how to get advantages during their learning process.

2. Teachers should be prepared with writing tips, prior to the implementation, to give the participants confidence before, during and after the process.

3. More time should be considered for both the researcher and the participants to practice more and refine their writing.

4. Researchers should extend the study of the use of Quizlet for other areas such as: science, chemistry or other technical majors.

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Appendix A

Design from Your Goals[1]

Instructional design of units for transfer of learning to real life contexts

Institution:	**Simon Bolivar Technological Institute**
Year of study:	**First Semester Plastic major**
Student description: (include English Level)	*Students in plastic technology major should successfully accomplish their bachelor degree and have interest in and affinity to chemistry, math and physics. They must design and use a variety of materials and have spatial intelligence and imagination. They are young adult learners with high needs in plastic knowledge, aged 17 and above. They have an A1.1 level*
Professor:	*Mrs Diana Estrada*
Unit title:	*Resistant Materials - Plastics & Processes*
Weeks:	*4 weeks*
Hours:	*40 hours*

I. Transfer Goal (Stage 1)

Standards the unit will work with:

Goal: I want my students to learn technical phrases and technical vocabulary so that on their own they can write and describe technical processes related to their major (Technology in plastic)

[1]This unit design process was adapted from the Guillot Design Process worksheet (2017) Design *from Your Goals* based on Wiggins-McTighe Backward Design.

Breakdown of transfer goal

A. If we see and hear them do this, they CAN transfer this learning.	B. If we see and hear them do this, then they CANNOT (yet) transfer:	C. What I will commit to doing differently in my classroom to ensure my results look like Column A.
• Apply technical vocabulary learned in an appropriate manner • Answer simple questions that demonstrate their understanding of plastic processes. • Draft a basic user's guide about correct processes to follow and suitable material to use in order to create an innovation with plastic.	• Don't use technical words properly. • Unable to write and show understanding of plastic processes. • Exhibit disorganization and Grammar/spelling errors in their written texts.	• Practice vocabulary by learning and identifying technical phrases in different ways in the Quizlet platform. • Provide individual feedback to help them with the process of their innovation. (coach them individually) • Use collaborative groups to let them feel comfortable and interact with others.

II. Summative Performance Assessment Task (Stage 2)

Goal	To write a user's manual for an innovation with plastic materials using the terms and technical language learned (develop a guide)
Role	Students are plastic designers
Audience	Guests, technical students and teachers at the institute
Situation	At the end of the semester, students have to take a position as designers, planning the design of an innovation using plastic materials and writing a user's manual with technical terms and phrases, following the correct processes.
Performance	Writing a user's manual
Standards	Produce informational, transactional, and expository texts consisting of a sequence of simple sentences that have more detail and show more variety in lexical range and sentence structure.

III. Knowledge and skills the students need to succeed in the assessment. (Stage 1)

What students will need to know	The skills students will need to be able to do
• Vocabulary related to plastic (technical phrases and terms) and simple writing process. • Punctuation and Organization of a sentence.	Write simple sentences related to the topic. Organize and connect ideas. Work collaboratively.

IV. Essential Questions (Stage 1)

Essential questions support the transfer goal, signal inquiry, guide instruction, and can be asked repeatedly throughout the unit without reaching a final answer.	
1. What makes designing a plastic creation a great innovation?	

Abbreviated Performance Task: Develop a user's manual of a plastic innovation**.**

(40 hours) hours are about 50 minutes each one and 4 weeks of 2 hours per day

Learning Activities (from student's perspective)	**Intention**	**A**	**M**	**T**
Week 1: 5 days **Time:** 50 minutes per hour **Setting:** The classroom Students take the pre-test. Teacher elicits the names of plastic materials they know and discuss its uses Explanation of the instruments used for the innovation (pre-test, post-test, rubric and the survey)	Data collection Hook Parameters	X x		
Discuss about different processes and materials to design a plastic object.	Initiating		x	
Recognize differences between plastics by touching real objects made with it.	Activation of learners' prior knowledge	X		

Read about plastic creations and answer some questions in groups.	Developing		x	
Ss. Present some ideas of innovations made by plastic.	Performing	X		
Week 2: 5 days **Time:** 50 minutes per hour **Setting:** The classroom Ss. Match pictures with vocabulary learned, practicing by identifying, and then, writing the correct ideas according to what they see and hear. (practice in Quizlet tool in and out the classroom).	Developing		X	
Share ideas of how create plastic objects.	Practice			x
Assist their classmates to prevent or avoid future breakdowns by exchanging ideas and posting into pieces of paper.	Group feedback			x
Write a draft of their ideas about designing a plastic object and specify materials and steps to follow.	Performing			x
Students access the Google classroom platform to watch previous creations (videos, and pictures from others) students will use this basis to improve their draft.	Recalling		x	
Present their first draft about their innovative plastic creation in class by using charts and drawings.	Performing			x
Week 3: 5 days **Time:** 50 minutes per hour **Setting:** The classroom				

Students identify and write vocabulary terms by revising explanations and meanings.(practiceVocabulary in Quizlet in and out the classrom) .	Hook & activation of learners' prior knowledge	x		
Investigate the physical properties of plastics and evaluate differences between those properties for each type of plastic.	initiating		x	
Students find videos about creations made with plastic on YOUTUBE that encourages their imagination	research		x	
Identify and match pictures and meanings of plastic processes in Quizlet in and out the classroom.	practice			x
Label steps of plastic designing processes in Quizlet tool.	consolidate			x
Rewrite about their designed plastic object by using a rubric to organize their ideas and guide their work.	practice		x	
Revise the draft of their project to check the materials and process of the user's manual and, they use the rubric with their classmates.	developing			x
Revise the draft of their project to check the materials and process of the user's manual and, they use the rubric with the teacher in charge and the expert.	closure			x
Week 4: 5 days **Time:** 50 minutes per hour **Setting:** The classroom				
Practice and interact in **Quizlet** tool playing in groups to identify plastic terms and processes.	Practice	x		

Present the user's manual in groups about their own innovation using plastic materials they choose and, they use the rubric again to verify if their work follows the guidelines.	Guide instruction			x
Then, they will take a quiz to demonstrate their knowledge about plastic materials and processes.	Final Formative assessment			x
Upload their work in a word document. (user's manual developed)	Final Summative assessment Summative assessment			x
Last assignment: PERFORMANCE TASK (Posttest). Survey about satisfaction.	Formative assessment Closure			x

Learning process: A = Acquisition, M = Meaning Making, T = Transfer

Intention: Hook, **formative assessment**, initiating, developing, review, closure**, research**, other.

Indicate Week 1, 2, etc. and number of hours.

Facets of Understanding	Formative Assessment.
Explanation	Develop a user's manual e describing and using appropriate plastic processes.

Interpretation	Assume the role of an innovative technician. Interpret and analyze the processes of designing an object with plastic.
Application	Create and perform an innovation using plastic.
Perspective	Compare the different processes used by their classmates in the creation of an object.
Empathy	Develop a user's manual containing a list of materials and steps to help technicians avoid failure in plastic processes.
Self-knowledge	Develop a summary with a brief description of their plastic innovation and some anticipated problems.

VI. On-going Self-Assessment

As I reflect on student learning, what will I do if my plan is not yielding my expected results?
1. I will find more studies about the topic and new strategies that I could apply to get better results.

Appendix B

Pre-test

Student´s name: ……...…… **Date**: …….

Section B

Answer the following:

You are working in a company and you are the leader of a group. Your group has to operate a new plastic machine that has different functions in order to build a set of plastic objects using various types of plastic.

- How can you start? -Explain easy steps to follow.

……

……

Appendix C

Post-test

Student´s name: ……...…… **Date**: …….

Section B

Answer the following entry.

You are a 3rd-semester student at a technical plastic career in a well-known technical Institute. You have the opportunity to apply for a scholarship, for the rest of the semester. To apply for this requirement, you have to create an innovation with a minimum group of five students in the same semester and career.

The group will create a plastic innovation and present your invention to a knowledgeable audience by developing a guide. You and your group must decide:

- the creation of a plastic innovative object.
- the materials.
- the basic steps needed.

Appendix D

Rubric

Teacher`s Name: Mrs. ESTRADA

EXPANDING VOCABULARY TO IMPROVE MY WRITINGS**: BY DESIGNING AN INSTRUMENT THROUGH THE USE OF TECHNICAL VOCABULARY**				
CATEGORY	4 - Above Standard	3- Meets Standard	2 - Approaches Standard	1- Below Standard
SEQUENCING 3 POINTS	3 points Steps and materials were outlined in an effective, logical structure. No teacher help was needed to accomplish this.	2 points Steps and materials were outlined with a logical structure. Some teacher help was needed to accomplish this.	1.5 points Steps and materials were outlined with evidence of a logical structure. However, requires explanation even after teacher feedback was given.	1 point Plan was seriously incomplete and does not have evidence of a logical structure. It was not sequential even after teacher feedback.
ORGANIZATION 3 POINTS	3 points The guide provides a complete record of materials and construction. All ideas have been developed well.	2 points The guide provides a complete record of planning and construction. However, some ideas are not well-defined.	1.5 points The guide provides some information about planning and construction. One or two ideas are developed.	1 point The guide provides little or no information about planning and construction. The teacher can`t identify ideas.

VOCABULARY TO IMPROVE STUDENT'S WRITING

Technical Vocabulary 4 POINTS	4 points The guide provides a variety of vocabulary terms, appropriate for the audience. Complete Words are related to plastic materials and processes and are used correctly.	3 points Most vocabulary terms in the guide are related to plastic materials and processes and are used correctly.	2.5 points Some vocabulary terms in the guide are related to plastic materials and processes and are used correctly.	2 points Few vocabulary terms in the guide are related to plastic materials and processes and are used correctly.
Date Created: **Jan 21, 2019 04:35 pm**				

Appendix E

Survey

Read each question carefully and put a .(✓) where you consider necessary.

1= Strongly Agree 2= Agree 3= Disagree 4= Strongly Disagree

Items	Statement	*1*	*2*	*3*	*4*
1	The introduction of technical vocabulary helped me to write simple sentences. La introduccion del vocabulario técnico me ayudo a escribir oraciones simples.				
2	The Quizlet tool was an interesting and effective way to expand my technical vocabulary. La herramienta de Quizlet fue una opción interesante y efectiva para expandir mi vocabulario técnico.				
3	Writing a user's manual was a difficult task to be developed in class. Escribir un manual fue difícil a desarrollar en clases.				
4	Group work helped me to improve my writing in English. El trabajo de grupo me beneficio para mejorar mi escritura en Ingles.				

5	Teachers` and classmates' feedback helped me to understand the project. La retroalimentación de los compañeros y de mis maestros me ayudo a la comprensión de cualquier proyecto.				
6	Group work encouraged my learning process. El trabajo de grupo promovió mi proceso de aprendizaje.				
7	Group work produced independence. El trabajo de grupo produjo independencia.				
8	Based on a rubric I can set and organize my ideas in writing. Basado en una rúbrica puedo organizar y postear mis ideas en un escrito.				
9	Working in groups helped me realize my own mistakes. Trabajar en grupos me ayudó a darme cuenta de mis propios errores.				
10	I can provide feedback to my classmates based on a rubric. Puedo retroalimentar el trabajo de mis compañeros basado en una rúbrica.				

VOCABULARY TO IMPROVE STUDENT'S WRITING