THE GAME AND ICT: LEARNING A SECOND LANGUAGE

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ABSTRACT

This document corresponds to the study's final report called "The game and ICT: Learning a Second Language." This study was carried out from May to October 2007 by the Center for Educational Informatics of the Pontificia Universidad Católica de Chile.

It corresponds to a descriptive-exploratory study whose objective was to explore and analyze whether there is a relationship between the use of interactive games and the increase in lexical fields of the English language in NM2[1] students from three high schools in Chile Metropolitan Region[2]. The selected strategy was introducing 8 to 16 interactive Free to Play (F2P) video games. The classroom work was distributed into individuals, pairs, or groups to collaborate and analyze all possible interactions.

One teacher from each high school and a total of 108 students participated in the study.

KEYWORDS: Information technologies, educational informatics, teacher-student relationship, cognition, education, active learning, teaching a second language, lexical fields.

1. BACKGROUND

Enlaces is an initiative of the Chilean Government that emerged as a pilot project in 1992 and is publicly known as Enlaces Network or Enlaces Project. In 2005, Enlaces became the Center for Education and Technology of Chile, dependent on the Ministry of Education, thereby formalizing the expansion of its shares and actual beneficiaries.

In recent years Chile has placed, at the center of its development strategy, the substantial improvement of the quality and equity of education and the incorporation of ICT in public services, business, production, and citizen participation. In this framework and for more than a decade, the Ministry of Education through the Education and Technology Center, hereinafter Enlaces, has led the integration of Information and Communication Technologies (ICT) in the school system and developed digital literacy in the community.

[1] Nivel Medio 2 or NM2, is the equivalent of 10th grade in the United States educational system.
[2] The administrative territorial organization of Chile divides the country into 16 regions. Metropolitan is one of them. Santiago, the capital city of the country, is a part of Metropolitan Region.

A particular Enlaces strategy is to encourage specialized institutions in the educational use of ICT to design and develop studies and projects for innovation and improvement in educational informatics. The purpose is to generate new knowledge validated as relevant models applicable to specific school contexts and then transfer those models to the rest of the school system and the community.

The Center for Educational Informatics of the Pontificia Universidad Católica de Chile, from now on CIE UC, participated in the national contest "Explorations in Educational Informatics" for field investigations related to the teaching and learning process within the framework of the school curriculum, plans, and programs prescriptive by the Ministry. Its purpose is to provide new knowledge on the use of ICT in education and make it available to all stakeholders interested in educational computing and become the basis for the design of pilot projects by the Ministry.

CIE UC designed and implemented the study "The game and ICT: learning a second language." The methodology used in the study is detailed below, and the results and the corresponding conclusions.

2. METHODOLOGY

2.1. THEORETICAL FRAMEWORK

This section is a review of the topics that contextualize the study. The theoretical framework begins with a brief reference to the International Context and continues with a brief Conceptual Map.

2.1.1 Context

The strong and growing influence of the globalization process undergoes experience in almost all world latitudes. Globalization is extensive since it encompasses all sectors of society and intensive since it occurs with shocking speed and dizziness (Sunkel, 1998).

Among its benefits, globalization produces expansion and liberalization of the economy due to the change of the system. Also, globalization creates more productive work and greater social mobility, which translates into more significant and better technological capacity, bringing greater efficiency in production processes. Furthermore, globalization includes transnational integration due to the opening of the markets and the different commercial treaties that exist today. However, this is a non-linear dialectical process, with its corresponding anti process (Sunkel, 1998) since not all the effects of globalization are positive. It also produces poverty and social exclusion in sectors that are unable to integrate into this new transnational economic order, such as artisans and some small entrepreneurs who cannot compete against large companies, whether they are transnational conglomerates or others. According to many persons in the developing world, globalization has not brought the promised economic benefits (Stiglitz, 2002). Thus, together with a process of international integration, national disintegration occurs in sectors and areas that do not adapt to global change.

In response to this process and recognizing its importance, in the last 15 years, the Chilean State has developed various strategies to fight the adverse effects of globalization and, at the same time, take advantage of the positive ones, like incorporating new knowledge and technologies in the curricular designs for the education and training of citizens. One of the programs that have successfully introduced new and better practices has been Enlaces program, which has contributed to the equity and quality of the teaching-learning processes from the gradual integration of information technology.

Enlaces program is part of the Educational Reform promoted by the governments of the Concertación political alliance, being part of the Program for the Improvement of the Quality and Equity of Education (MECE, for his Spanish acronyms), which seeks to improve the quality of the inputs, processes, and results of the school system, and the equity of its distribution, constituting a strategy to introduce information and communication technologies in Chile (García, 1999).

By incorporating ICTs in the curriculum, children and adolescents have been closer to the use and benefits of computers and the Internet, which contributes to the elimination of cultural barriers, thus allowing the inclusion of people into this new type of society. All this added to the implementation of computer labs in all public schools in Chile.

Another exciting strategy promoted by the Concertación political alliance, to face the demands for technical training of the national and international market, has been to promote the learning of a second language. In 2003 the Ministry of Education announced a more intensive English program as part of the plan to improve the quality of Chilean education. Therefore, learning a second language is presented as a challenge of integration in a globalized world, becoming a fundamental requirement for developing countries like ours since it allows quality and equitable access to the different levels of economic life and culture.

This national and at the same time international context, promotes the rising of research to test resources to improve the quality of English language, learning and developing better resources for the school curriculum is essential since its results and products will be transformed into input to improve the quality of education. Additionally, promoting English language learning through various tools, especially ICT, can allow citizens to take advantage of international treaties, communicate with other cultures, and grow significantly.

2.1.2. Conceptual Framework

The game and the teaching-learning of a second language

When it comes to games, it is inevitable to associate them with children in fun activities. Therefore, it can be said that the game consists of active participation in pleasant physical or mental activities to achieve emotional satisfaction, where the player must be able to control their shares. (Pugmire-Stoy, 1996).

Another conceptualization provided by Ian E. Hewitt, points out that the game has several characteristics (Hewitt, 1996):

- It is simple and persuasive
- It should be fun
- It must also teach and reinforce skills and,
- It can be competitive and a measure of knowledge gaining.

Games are usually fun; however, their importance or pedagogical value should not be minimized, especially when talking about teaching or learning. Games are helpful to break the monotony of traditional classes, allowing group work and healthy competition.

In cognitive development, playing is considered crucial for the development of cognitive structures since playing, in its different forms, constitutes an essential part of children's social and cognitive development (Csikszentmihalyi, 1990).

The game promotes several learning benefits: it stores information in memory, solves problems, builds a useful vocabulary, and let's not forget that games provide opportunities for building self-concept and developing positive attitudes through reducing the fear of failure and error (Davis, 1995).

Among the many features of the game that make it an excellent teaching tool is that it involves CHALLENGES, COLLABORATION, and LEARNING (García-Valcarcel, 1999):

CHALLENGE:

Many games consist of a challenge getting something done and doing it better, or increasing levels of difficulty, or else. Challenges can be competitive such as achieving a goal before others or "finishing first in a race". Chess, checkers, Parcheesi, and more, are examples of competitive games.

COLLABORATION:

Achieving a goal with the help of the group makes the game become a powerful element of socialization. Sports team games, card games,

dice, in pairs, group problem solving, and others are examples from collaborative games.

LEARNING:

Through play, children imitate adult behavior and learn social norms and rules. Although the instructive toys (puzzles, stories, blocks, for example) teach them basic concepts and develop manual skills, the game allows them to rehearse new identities and assume their own identity.

Games can be essential in the learning process of any student. They can be used as motivational elements to generate interest and enjoyment in the participants, but more importantly, the game is helpful to ensure and contextualize the knowledge transfer.

One promising aspect of the game is increasing the lexical fields in a second language. Uberman research (Uberman, 1998) produced some evidence that shows that games are useful and more successful than other methods of vocabulary presentation and revision in a second language.

Games can include nouns, adjectives, prepositions, verbs, conjugations, and others since one of the game's essential functions is the practice of acquired communication skills.

Team play, a privileged space for communicative practices, involves collaborative work, which can be a successful way of learning since it enables students to encourage their classmates to ask questions, explain and justify opinions, articulate their reasoning, and to reflect on their knowledge, which ultimately enhances the acquisition of a second language.

Learning and play are closely related, since the first (learning) is a continuous process of balance, that is, of adaptation, assimilation, and accommodation that occurs between the knowing subject and the object to be known, which can be developed through the second (the game).

Gaming and Information and Communication Technologies

The use of ICT in educational processes is not new. They have fulfilled the role of facilitators for inquiry and knowledge acquisition in collaborative and interactive learning environments (De Corte, 1996). Derrick de Kerckhove points out that our organism spontaneously responds to stimuli in movement regardless of our interest in the program's content (de Kerckhove, 1997). That is, any movement on the screen would attract our attention immediately. Moreover, movement is one of the peculiarities of games.

One of the characteristics of computer support is they can be educational. Studies that have been undertaken, illustrated the kinds of learning that take place through play, but these note that such learning may be of little relevance to the kinds of outcomes valued in formal education (de Freitas, 2006).

It is vital "to think" of computers as student collaborators or in a metaphor coined for that purpose; as a "cognitive tool." That implies considering computers as tools that can assist students in executing cognitive tasks and fulfilling certain functions such as: supporting cognitive and metacognitive processes, sharing the cognitive load by providing support to students, or allowing them to engage in activities that would otherwise be out of their reach (Lajoie, 1993). Moreover, using the computer as a tool for teaching thinking and problem solving involves changing the emphasis from the computer as a tutor and drill master to using the computer as a tool (Repman, 1993).

Instructional games on computers, alternated with other learning techniques, offer several tangible benefits (Cruz, 2007). These include:

For the kids

- Games enable and get the child to interact with content for a long time at their own will.
- Games make the child see the content with more pleasure.

- Games make the child gain confidence as an intellectual being, instead of feeling ashamed or afraid to learn.
- Games allow complex psychological realities to be developed by the teacher in the classroom: the visualization of images, figures, and the reproduction of sounds.
- Games allow progress according to the participant's intellectual development, which develops gradually with the same game.
- Games facilitate the student to evaluate himself according to the results obtained and to repeat the game or motivate the use of other techniques or learning methods to return to the game.
- Games develop other intellectual abilities related to the use of technologies.

For the teacher

- Games are a new alternative to enhance, study and use, whenever it is convenient.
- Games allow planning new ways of learning, where the content is presented by the teacher and personalized by the student.
- Games allow more time to be spent studying and searching for new ways and methods of approaching and presenting content.
- Games facilitate that part of the time spent speaking or dictating content can be used to control, diagnose, and induce the content.
- Games characteristics are recognized by the child and their acceptance make the subject more enjoyable and accepted.
- Games allow new evaluation techniques to be exploited, that can be transparent for the student. Just by looking at the game results the teacher can perceive the student's level of knowledge.
- Games allow access to new forms of independent study and their extension to home and community centers that provide computer services.

Why is it feasible to implement games in the classroom to learn lexical fields of the English language?

Different studies carried out in recent years reveal the growing interest in applying games using technology as a teaching strategy in schools. For example, Williamson and Face carried out outstanding studies between 1995 and 2003 (Williamson & Face, 2004). In them, play stands out as a learning tool, as it offers young people a place for enriching, attractive, and pleasant social experiences where they find motivation, which indicates possible avenues for exploration in educational contexts.

At the same time, as a learning strategy, games help students resolve their internal conflicts and face future situations with decision and wisdom. It happens as long as the facilitator has traveled with him that difficult path such as the learning conducted by other traditional repressive means, and with great obsolescence and ignorance of the technological and didactic contributions. (Torres, 2001).

It could be inferred that introducing a systematic work modality in the classroom that includes the use of Internet games in the classroom will promote the collaborative participation of students, enhancing the learning-teaching of a second language and, at the same time, the acquisition of the necessary skills to achieve this in an environment known to the participants, enhancing meaningful learning.

2.2. RESEARCH PROBLEM

Exploring the inclusion of ICT in the teaching and learning process of the English language, specifically the inclusion of F2P GAMES in the classroom, is presented as a requirement to analyze the feasibility of the development of pilots and educational models that facilitate students to improve their learning skills in the classroom. At the same time, it is essential to know what strategies enhance Personal Growth and Self-

affirmation, Thought Development, and Ethical, Person and Environment Training[3].

Therefore, the question that guided this study was: Are Free to Play (F2P)[4] in the learning classroom related to learning lexical fields of the English language in NM2 students of the Foreign Language subsector?

2.3. RESEARCH OBJECTIVES

2.3.1. General Objective

To explore and analyze whether there is a relationship between the use of Free to Play (F2P) GAMES and the increase in lexical fields of the English language in NM2 students from 3 high schools in the Metropolitan Region.

2.3.1. Specific Objectives

I. Explore the influence of the use of F2P GAMES in the classroom.

II. Explore the relationship between F2P GAMES and English lexical fields learning by observing interactive games in the classroom, opinions of the game users (2nd-year students medium), and teachers.

III. Explore differences between rural and urban schools.

IV. Draw up conclusions and guidelines that allow an interactive game to be developed later, including elements that should be considered in an instructional design proposal for said multimedia application.

2.4. METHODOLOGICAL APPROACH

This study intended to facilitate the understanding of the introduction of F2P GAMES in the classroom. At the same time, the study aims to facilitate the learning of the English language.

The selected strategy baseline was presenting 8 to 16 interactive F2P GAMES to three educational high schools. Work time in the classroom was 45 minutes, once a week for two months.

The research problem was addressed by a longitudinal panel, exploratory-descriptive design, since it sought to investigate and analyze the research problem over two months, observing its development and focusing on the evolution of the observed individuals.

It was also a contrast study (experimental) regarding the measurement of the level of learning of lexical fields corresponding to a Pretest and Posttest model. In summary, the study had an integrated methodological approach[5].

2.4.1. Technique

Since the study presented an integrated methodological approach, the techniques used belonged to both approaches (qualitative and quantitative). The study used different techniques to achieve the specific objectives:

- Discussion Groups (with students),
- Semi-structured interviews (with teachers) and,
- Participant observation to analyze the development of the classes.

Finally, the students took Pretest and Posttest of learning lexical fields in the English language for contrast measurement.

2.4.2. Measurement tools

1. Test to measure the learning of lexical fields. Ph.D. Samuel Fernandez, expert in English education, oversaw the test development. The measurement items were compared and adjusted according to

[3] Transversal Fundamental Objectives (OFT) established in Decree 220 of the Ministry of Education, Chile.

[4] Free to Play (F2P) are online games that can be played without a fee.

[5] The study uses both qualitative and quantitative approaches.

the proposals of the English Open Doors Ministry of Education program.
2. Observation guidelines
3. Guidelines for interviews

2.4.3. Sample

As a sampling method a convenience sample is chosen. Selection of three high schools, both for the control and experimental groups. Two of them are from rural areas and one urban. Thus, there were two NM2 students' groups from each high schools, one as a control group and the other as an experimental group respectively.

3. FINDINGS AND CONCLUSIONS

3.1. QUALITATIVE DATA ANALYSIS

Teachers interviews and student discussion groups

The open coding approach was selected to shape a coherent and unitary interpretive structure (both for discussion groups and interviews). Here the expressions are classified by their units of meaning, be they individual words or short sequences of words, to assign them annotations and "codes" concepts.

For methodological and length reasons, only some citations are shown. The purpose is to understand "units of meaning" to illustrate the context units to which the citations belong since it would not be functional in this summary to incorporate all the relevant texts, as it would produce an analysis far from the original objective. The "units of meaning" make the observed reality understandable in a brief and summarized way.

The coding process in which the units of records, ergo the "speech" of the subjects, have been assigned to different dimensions or units of context. These interpretative units are, in other words unique. The units result in the following categorizations or dimensions:

i. Internet Access and Infrastructures.
ii. Group Structure and Evolution.
iii. Pedagogical/ Software/ Environmental Management.
iv. Innovative Pedagogy.
v. Change of Emphasis in Programmatic Structure.

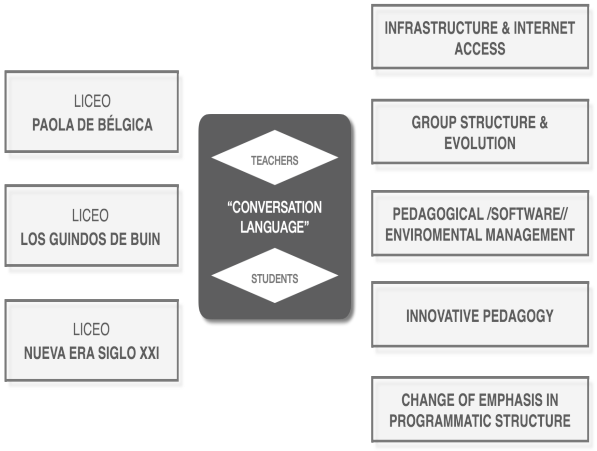

Fig. 1 Analysis Dimension Framework

These units of meaning/dimensions are to generate a referential and operational conceptual schematic (ECRO[6] for his Spanish acronyms), which accounts for the typical mentality to be composed in the groups, accounting for the background of the intention of the speaking subjects, skills, dispositions, practices. This schematic will serve us for the interpretative and descriptive effects and in the elaboration of conclusions and guidelines of the study.

[6] Enrique Pichón Riviere (M.D.) discovers a new field of inquiry, conceptualization, and intervention that transcends the speaker's speech. It is a new passage from Psychoanalysis and Social Psychology.

Different theories nourished the conceptual scheme of knowledge ECRO having Pichon based on authors such as Freud, Melanie Klein, George Mead, Kurt Lewin, Marx, Moreno, Piaget, J. P. Sartre, Henri Lefebre, Fairbairn, Bachelard, W. Reich, Bateson, and others.

3.1.1 Summary of Analysis: Teachers interviews

i. Internet access and infrastructure

Inaccessibility to the network is a noise factor given the faulty connection in rural high schools, especially in Liceo Reina Paola de Bélgica. They try to access better Internet service; internet companies do not cover their location like other Santiago areas. As an effect of not having broadband, they had implementation problems:

> *"The first days, as I was saying, were bad, because; one the computers was slow; another did not work, there were mouse problems, we could not connect all the computers (…)."*

When there was internet connection, it generally presented network traffic congestion since, in the case of Liceo Agrícola Reina Paola in Bélgica, they had an analogous connection. Furthermore, this type of connection made it difficult to access and navigate F2P GAMES:

> *"(...) are like ten computers, and the connection is not that fast (...)."*

As an expected collateral effect, an environment of disorder emerged within the class), where certain actors arise, which incite the group to express their annoyance regarding this situation:

> *"(...) the students say to me: this computer is very slow, so they begin to argue, and they begin to complain about it, which left very little time (*to play*)."*

The spatial distribution within the rooms determined the levels of control and supervision that teachers could exercise, diminishing in cases where there were computer labs. For example, some students were isolated, given the computers' location, inside a classroom (e.g., Liceo Reina Paola de Bélgica with an (L) shape. In others, there was too large a space that restricted the teacher from closely supervising the proper use of computers (e.g., Liceo Los Guindos de Buin). Here the teacher could focus only on the contents of the unit and supervise the use of the computer in other activities such as MSN[7] or visiting various Web pages:

> *"(…) They cannot be still, and they start throwing papers. They cannot be paying attention to the class due to being able to understand the subject. It is different with II° A students (Control Group), the leaders are positive, and they are leaders that ~~they t~~end always to be studying."*

In addition to all described situations, some teachers glimpse a certain demotivation inherited from the students:

> *"I think the language is… I feel like students are unmotivated. I try to find a way to motivate them and make them like English, and sometimes I cannot find how with these students. Even if I told them, "kids, let's go to a party," they still didn't care. They are not self-motivated."*

> *"(...) like they don't want to move on, and they're messy."*

ii. Group Structure and Evolution

Nevertheless, as the study progresses, this state of demotivation is overcome with improved access to the network and a more participatory attitude:

> *"(…) they began to see if it was possible to compete, who made more points, to look for themselves more advanced games, amongst them (the games of the study) then, it was seen despite the problems, the Internet difficulties we had it was achieved uh ... this dynamic as entertaining between them."*

[7] MSN Messenger is a Microsoft software program that allows users to chat online (Internet) with other users. Messenger is similar to text messaging. Users can also video chat if both users have a webcam connected to their computers.

In the final part of the study, the game influence in the classroom reaches such a point that cases appear in which it is the students themselves who took the initiative and begin to search for and discover concepts and words previously unknown to them. This attitude was liked by teachers:

> *"After two, three classes had already passed by themselves, students didn't even ask what the instructions are, (…), they got into the games, they looked, ahh, this game yes, and this one here. They explained between themselves, in the end, one was just like a referent that put a bit of order, let's say, not that the game had to be explained no (…) I think they quickly started to self-learn by themselves, let's say, as independent, alone, and I think I liked that, precisely because of wear and tear"*

iii. Pedagogical/Software/Environmental Management.

Teachers shown an evident lack of knowledge, at least at an adequate practical level, of F2P GAMES; it is the first time they have had an experience of this type:

> *"I had never worked on it. As a student, in a methodology course, we work with games. More than anything with flashcards and things like that, but like this, with games on the Internet, we had not done it."*

> *" (...) at most, working with Data, looking for material in the network and things like that, but not so much. Neither like every day nor once a week, no. Once in a while, once a month, the PowerPoint presentation, things like that. "*

> *"I have never had, let's say, more experience in the computer. My level is very beginner working on the Internet and in interactive games; therefore, I have never had such an experience. "*

The skill levels to manage the games were as beginners, even in their early stages, which meant an intensive self-training of teachers on the subject:

> *"About what communications technologies are and all that, I feel that I manage myself anyway. Not as an engineer, of course, but as a user-level, and I feel that it is not difficult for me (…) I do not take care of it very well, so I am like playing every day to learn how to do it."*

iv. Innovative Pedagogy

Initially, it is possible to observe a type of educational orthodoxy, which does not include working with new tools (technological in this case) in teaching settings:

> *"I am very old school. So, in my viewpoint, it is better to learn with a book. In terms of the language, a book and a dictionary (…)."*

One of the main contributions of the new methodology was to increase the levels of motivation existing within the students. More motivation provides greater agility to the learning process, leading to moving outside of class hours. Even some students showed initiative to continue the process of searching for concepts and words outside the classroom:

> *"(…) when showing it on a screen with color and movement, the students are more motivated, and it attracts more attention (…)."*

> *"It's like a desire to be encouraged to have English, which is not the typical thing that happens in all subjects (...) the next day with the same course, a student arrived and said: " listen, teacher, do you remember there was an object we didn't know what word in English was?" and he came up with the word because he looked it up in the dictionary after class."*

Innovation in the teaching method implies giving a different meaning to learning since what is taught permeates the cognitive processes with much more force. For example, words, when accompanied by an image, create associations, thereby facilitating vocabulary learning:

"(...) because they sometimes like just receive the information. The reception is much better through the process of discovering something for themselves."

"It seems to me that since they are more engraved, learning with the game is more significant than in the traditional way."

Teachers see their job enabled since games allowed to improve the environment inside the classrooms. To this extent, favorable conditions were given for execution (e.g., access to the network and computers labs).

A door is opened for teachers when they see the possibility of applying the game as a different tool for teaching:

"I think it helped me, and the children liked it. Through the games, the project helped me a lot because the computer helped me do my class. Even though they were games, students also saw it as learning (...) even opened the door for me. The Internet has much of its content in English, so it helped me, and I'm thinking of using what I learned next year. Use it for my improvement."

v. Change of Emphasis in Programmatic Structure

The teachers analyze some of the objectives proposed by the Ministry of Education, questioning its applicability. For example, teachers mentioned that expectations about vocabulary would be out of reach even for a native speaker:

"(…) the problem is that the contents expected to be taught (by the Ministry of Education) are not only about vocabulary. The student must know how to express himself in English. Likewise, if we follow exactly what the Ministry asks, we would be wrong (…) a native speaker has just mastered three thousand words, according to a scientific study, and even so, the entire Ministry asks us for almost five thousand words (…)"

The proposal of these teachers aims to enhance the syntax skills to be developed, which would be crucial for improving learning and acquisition of a second language:

"For a sophomore student to master five thousand words, that is impossible. Even if one makes an effort to do it, although passing vocabulary, vocabulary will not be of any use to them if we do not have the syntax to order it. "

"If we do not know how to form the sentences and the syntax of the sentence, it is of no use to us. The game (of vocabulary) works, but up to a point"

"It depends on how the content is delivered as well; the students are going to have more or less incentive enhance learning. The idea is that they do not believe a trauma, or that they are not scared by the language (...)."

As can be seen, teachers require a new generation of programs and games oriented to develop more language skills, not limited to memorizing words, which means enhancing the ability to order words and create phrases with a practical sense for everyday and technical use:

"They have to create PowerPoint, they have to create folders with learned technical vocabulary, and thus the children will see the images better recorded than just writing the word and its translation."

The ambition is to be able to count on a variety of didactic strategies that contemplate certain flexibility to accommodate the different capacities and levels of knowledge that the student population handles, but each one of them with a structure that allows class planning:

"Using different learning styles so that we reach the same end. That way, learning will be achieved."

"I think that maybe as stages. If the game it's built-in levels, it is going to be adequate for the student. So, make it very easy based on stages."

3.1.2 Summary of Analysis of interviews with students

i. Internet Access and Infrastructures

Students also perceived connectivity problems as an obstacle to the activity carried out:

"(...) the only bad thing is that the Internet failed all the time, so anyway, it kind of bothered me (...)."

"(…) It was still a very short time, and yes, games should last longer. Suddenly we were not doing almost anything because the Internet was going down."

"(...) there are many computers (in the laboratory) and the Internet is kind of bad."

ii. Group Structure and Evolution

Students recognize that there are classmates who cause disruptions within class time, which not only upsets teachers since they cannot continue teaching the subject (and could even be affected in the evaluation of their performance) but also harms the educational process itself:

"(…) He (the teacher) is teaching a specific topic, and he, as he loses concentration, later gets involved in another topic, and we all stay, as they say, hung up, and we don't learn anything. "

"The teacher is also harmed (...) he may even lose his job at the end of the year."

As the intervention progresses, an increase in interest of the subject is seen. Moreover, students handle technology skillfully (given the generation to which they belong), which facilitates the insertion of a new dynamic such as play, a space other than the classroom, it goes out of the routine by learning playfully:

"(…) The blackboard is only with words. On the other hand, the computer is like images, words (…). Besides, we know how to use the computer. "

"(the work in the computer lab) is more entertaining, and that it is not so much to concentrate on tasks, tasks, but to play, which is what you like." It's like playing, and you learn by playing"

"We are locked in the same room all day, so switching to another room is more relaxing."

iii. Pedagogical/Software/Environmenal Management

The level of technological competencies observed in students is varied. Some know how to access websites, but no greater digital literacy is observed in any of them. Some of them get confused when they are already inside the pages or want to access the games after logout.

"(...) the page is super long to understand. It is super complicated."

"(...) you forget the words to get in."

However, once inside the online game, the development of the session became easier after students recognized some cardinal points of reference:

"I think that the whole time I was improving. The images came out, and you know it was like that, what it goes "

iv. Innovative Pedagogy

Games have the quality of being able to entertain and teach at the same time, it generates environments of healthy competition within students, enhances cooperative internal

coexistence, and provide an innovative instance of learning:

> *"The game is fun, but I haven't used it much (...)."*
>
> *"I like English the same because I learn new things, and that way it is much more entertaining"*
>
> *"(...) I learned that one can have a good time, but at the same time studying (...)."*
>
> *"The routine is still to be inside of a room, but the difference was that we were no longer just reading some books and translating, but we were playing and learning."*
>
> *"(...) and the class with games was very useful, for example for me, for my classmates, because it allows us to improve communication with them, and build a bond that we had not had until now"*

Unlike traditional classes, game could be a powerful tool. Games provide a comprehensive teaching approach, given that when an image accompanies a word, it stimulates various types of memory, thereby enhancing the memorization process by association and display:

> *"(…) One has relationships with images and can adapt more to images than in theoretical classes because one has visual knowledge left. It is not so much theoretically that you must remember, but you forget it by the time. But when you see images, you are stuck with them because it is visual. "*
>
> *"(…) It makes psychological thoughts* (cognition) *develop more than a theoretical class, because a theoretical class is closely related to what the noise is, and the teacher is often unhappy, so on the computer one can develop thoughts more, searching for the words and intertwining one with another (…)."*

vi. Change of Emphasis in Programmatic Structuring

The study created an instance where students could share with other classmates and with the teacher. However, individual work sometimes removes a certain interactive richness from "the experience" and allows dispersion, which becomes a source of conflicts and interruptions within the class.

At certain times, the teacher had to provide practical exercises to optimize and prosecute those students who encountered difficulties and doubts regarding the different games and activities:

> *"(…) Is that she (teacher) made us enter the room, each one in a computer, she made us just write now. We did not share time with her, only when we needed it. "*
>
> *"(...) Well, we had the intention to share with her more time, but when we were practicing with the games, we never spoke to her (teacher)."*
>
> *"(…) The best thing would be to all work together on a single computer…. because half the people's minds were elsewhere."*
>
> *"(…) Because being on a computer, the page failed, or maybe I was more lost. So, I navigated and got into anything, I had to see the computer to my colleagues, and I don't know, I like it better in a group (…)."*

The students state that a greater conceptual depth should be given to the subjects undertaken, also considering the visual aspects:

> *"(…) Later the vocabulary can be translated into grammar, the same thing that is happening to us now, at the same but more didactic."*
>
> *"(...) they could make us create sentences, sometimes translate (...)."*

"The graphics I think they should improve it more"

3.2. QUANTITATIVE DATA ANALYSIS

The focus of the study was to explore and describe whether the use of F2P GAMES in the learning classroom is related to the learning of lexical fields of the English language. For these purposes, a Measurement Instrument (vocabulary test) is designed.

This instrument undergoes a test to determine its quality: its ability to detect inter-subject variations, demonstrating its sensitivity to different levels of vocabulary mastery.

Then a description of the sample was made in terms of the initial situation of English vocabulary mastery.

Finally, two differences *t*-Tests are applied at the total sample level, both for the total of correct answers and for the total of answered questions, comparing the experimental and control groups in the results of the Pretest and Posttest.

Sample Description

There is a sample of 193 Pretest and Posttest respondents, distributed in 6 groups as indicated in the following table:

HIGH SCHOOL NAME	EXPERIMENTAL	CONTROL
LICEO REINA PAOLA DE BÉLGICA	36	33
LICEO LOS GUINDOS DE BUIN	31	26
LICEO NUEVA ERA SIGLO XXI	29	38

Table 1: Sample Distribution per high school and type of group

An independent means comparison *t*-Test was used, which compares the means of two groups, usually requiring a significance level below 0.05.

The experimental and control groups do not show significant differences in the total of correct items during the PRE-TEST, so it can be assumed that they are initially equivalent in terms of mastery of English vocabulary.

	t	*d.f.*	Sig. (2–tailed)
TOTAL CORRECT ANSWERS	–1.64	191	0.10

Table 2: Independent Sample t-Test

To compare the initial situation of the three high schools, an ANOVA mean comparison between the three schools was used without considering the distinction between control and experimental groups, which was already known to be equivalent.

	Sum of square	*d.f.*	Mean square	F value	Sig.
Inter-groups	89282.4	2	44641.20	92.0823263	0.00
Intra-groups	92111.3	190	484.80		
Total	181393.7	192			

Table 3: ANOVA Test. Total mean from total correct answers

In addition, a Tukey HSD test to post hoc analysis was performed. The schools present different initial levels of English vocabulary proficiency.

Tukey's HSD	Subset for alpha = .05	
	1	2
LICEO REINA PAOLA DE BÉLGICA	56.06	
LICEO LOS GUINDOS DE BUIN	55.93	
LICEO NUEVA ERA SIGLO XXI		101.18
Sig.	0.99940375	1

Table 4: Mean of total responses according to schools grouped by subsets according to Tukey's HSD POST-HOC analysis

For example, the Nueva Era Siglo XXI high school presents significantly higher values in the total of correct questions, while the Reina Paola de Bélgica and Los Guindos de Buin high school present equivalent levels.

Pretest and Posttest Comparison Analysis

The means were initially compared separately for both conditions, as shown in tables 5 and 6, to analyze the effect associated with the experimental condition.

	t	*d.f.*	Sig. (2–tailed)
TOTAL CORRECT ANSWERS	–1.993	194	0.048

Table 5: Independent samples t-Test of total correct answers. Pretest and Posttest Experimental Groups

	t	*d.f.*	Sig. (2–tailed)
TOTAL CORRECT ANSWERS	0.353	183	0.725

Table 6: Independent samples t-Test of total correct answers. Pretest and Posttest Control Groups

Applying two parallel tests of comparison of means (*t*-Student), while the experimental group showed a significant increase in the total average number of correct answers, the control group did not show similar differences.

Additionally, the total number of answered questions (reagents), whether correct or incorrect, was compared applying the same analysis model.

	PRETEST	POSTTEST	Diference Pretest – Posttest
Experimental Group	71.9	60.7	–11.2
Control Group	63.4	66.8	3.4

Table 7: Average of Total Reagents answered by type of groups in Pretest and Posttest and difference between the two evaluations

The results indicated are evidence of a decrease in the number of answered questions in the experimental group while maintaining the control group's results.

	t	*d.f.*	Sig. (2–tailed)
TOTAL CORRECT ANSWERS	2.215	194	0.028

Table 8: Independent samples t-Test of total answered questions. Pretest and Posttest Experimental Groups

	t	*d.f.*	Sig. (2–tailed)
TOTAL CORRECT ANSWERS	–0.666	183	0.506

Table 9: Independent samples t-Test of total answered questions. Pretest and Posttest Control Groups

It is observed that the experimental condition is associated with increased correct answers and the diminishing of incorrect answers.

Therefore, the evidence suggests an association between a better understanding of what is known and not known observed in the decrease in the number of answered questions.

3.3. Conclusion

Enhancers and Deterrents

The integrated analysis of the qualitative and quantitative data showed various elements of F2P GAMES that impacted the classroom; these will be called "Enhancers" and "Deterrents."

Among the elements that enhanced the impact of the selected strategy, the motivation of the school management teams was the most fundamental. In addition, the participant teachers had a high commitment towards the study and the implementation of activities.

In the rural schools, the teachers whose classes were part of the study participated in the activity planning meetings alongside the directors, heads

of the Department of Technical Pedagogical Units, and the Coordinators of the Enlace program. Thus, these representatives were actively involved throughout the entire study.

In the case of the urban school, the Coordinators of the Enlace program and the teacher whose classes were included in the study participated in the planning meetings. Through them, the school boards made all the necessary resources available which, in some cases, implied carrying out institutional arrangements such as exchanging hours with other teachers at the school to make use of the computer lab.

The commitment promoted the implementation of the activity, giving it nourishment and, at the same time, being a motivating element for the students. Without the commitment of the schools, the games could not have been implemented.

Another empowering element was class planning. Both students' and teachers' motivation for the activity was directly related to the planning of the activity.

When teachers began to plan and introduce the game in the classroom as part of the didactic, the students changed their attitudes towards the game, improving concentration and discipline. Thus, the entry of teachers planning is the turning point of the study.

Extra elements that enhanced the activity were the games where group work was carried out, especially of the competition type. This type of game captured the students' attention and motivated them. On this point, both teachers and students agree.

As for deterrents, one of the elements that decreased the impact of the strategy was the connectivity conditions. This situation partially hindered the continuity of the study.

The insufficient quantity of computers at schools is another element to consider as a deterrent. Also, it is observed that other complementary technologies, such as projectors or laptops could be helpful in this situation.

Having portable computers would allow the teacher to carry out his/her class in the classroom and the laboratory. For example, a school may have a laboratory where each student uses a computer or may have only one computer and a projector and take the activity to the classroom to develop group games, but clearly, it must have some kind of technology and good connectivity.

Another deterrent element was the use of ICT by teachers. Again, not knowing the range of possibilities of use influenced the initial exhibit motivation at the beginning of the study.

What is relevant is that they experienced integration with ICT, stating that they were willing to use them in the future in these schools and in others where they also teach.

Rural versus urban schools

The study designated two categories for schools: urban and rural, to see differences between the two groups.

Among the differences observed from the beginning was the number of lexical fields.

In the Pretest, rural schools presented equivalent levels of vocabulary. On the other hand, the number of lexical fields in the urban school was higher.

As observed in the analysis of qualitative data, the connectivity problem is also a factor of differences. In the case of rural schools, they always had problems with the Internet connection. Companies that provide this service do not have broad coverage in the Metropolitan Region peripheral areas.

In the case of the urban high school, there was never a connectivity problem, which allowed a more fluid development of the activity.

Within the similarities at the end of the study, both urban and rural teachers were highly motivated with the possibility of introducing F2P GAMES as a learning strategy for their students. Furthermore, all stated that they were using or would use these games in the future with students from other courses or schools.

We can also mention the significant increase in the total average number of correct answers in the experimental groups. In both population samples, the control groups did not present significant differences in the correct answers.

When analyzing the answered incorrect answers, the experimental groups also show a similarity in the decrease in the number of answered questions, while, in all the control, urban and rural groups, the number of incorrect answers remains.

Summary

At the end of the study, it is possible to conclude that the introduction of F2P GAMES to the classroom not only strengthened motivation, liking for the subject, participation in the classroom, and healthy coexistence but also an increase in the lexical fields of the students who participated in the study.

Both students and teachers were motivated by the insertion of F2P GAMES in the classroom. However, it was not an immediate effect but a medium-term effect (towards the end of the experimental period). At the same time, both students and teachers agree that the game can be a viable strategy to cover different areas of learning and acquisition of the English language, such as grammar and pronunciation.

There is a significant increase in the correct answers after applying the experimentation, and these results validate the belief that the outcomes could be similar in other schools.

Therefore, the recommendations are to delve further into this matter and design and implement a pilot to analyze whether these data can be extrapolated to a broader population group.

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