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**Effects of the Signalling Principle on EFL Learning:
A Study of Explicit Presentation of Frequent Grammar
Mistakes Using an Adapted Functional Teaching Approach**

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Abstract

This piece of research presents the results of a quasi-experimental study on the effects of the signalling principle (Mayer 2001) in a sample of Chilean university EFL learners exposed to pictures and text with explicit presentations of grammar mistakes. One group was presented explicitly some frequent grammar mistakes previously elicited from ten experienced teachers of English that included the signalling principle (using several colours, sounds and semiotic signs). The other group was exposed to the functional approach, where grammar mistakes were implicitly dealt with, using the same pictures as teaching resources used by the experimental group. Both groups kept the interactive and functional practice. After using different instruments to test recognition and oral production, findings revealed there were no significant differences with a P-value of 0.314 and a 5% level of significance when both groups were compared in the recognition stage of mistakes. This means that both groups benefited from explicit and implicit presentation of specific English contents. However, in the oral production stage, the group that was explicitly exposed to some grammar mistakes did a better job at "monitoring" and self-correcting some of the mistakes that had been shown in the presentation stage. These results show that using explicit presentations of grammar mistakes on one hand was neither detrimental nor unnecessary for recognising such mistakes, and on the other hand, learners increased their monitoring and self correcting learning capacities.

Keywords: EFL learning and teaching, explicit versus implicit teaching, multimedia learning, signalling principle, teaching of grammar

Introduction

One of the most controversial issues when teaching English as a foreign language in Chile is the way in which grammar is taught in the classroom. At present, most institutions in Chilean educational contexts are advising EFL teachers to reject any type of grammar activities or any grammar explanations, which consist of explicit emphasis on language form when teaching English. However, most selected materials and even exams are still grammar oriented, because this is the main focus to take into consideration when assessing the students' level of language achievement.

The previous contradiction is proof of the existing gap between what most educational institutions want their students to achieve and how they want their teachers to orient their lessons in an EFL classroom setting. Such contradiction may be explained by the fact that there has been a lack of understanding of the real role of grammar in second/foreign language learning in Chile, which has been mostly associated with mere rules or the so-called, demonised grammar translation method that dominated different classrooms in the past.

There have been and there are certainly a wide range of approaches and methods to which language institutions and EFL teachers have adhered and still consider the most effective for the students to learn a foreign language across the country. Nevertheless, some practitioners and second language researchers disagree with the idea of adopting a single method or approach and instead, the emphasis is on certain language activities or tasks that can guarantee EFL students to learn a foreign/second language. As the researcher Nunan (1992: 228) puts it:

It has been realized that there never was and probably never will be a method for all, and the focus in recent years has been on the development of classroom tasks and activities which are consonant with what we know about second language acquisition, and which are also in keeping with the dynamics of the classroom itself.

Therefore, several prejudices with grammar approaches and classroom practices have been rejected thoroughly, leaving aside the possibility to at least evaluate whether or not the students can benefit from such instruction along with the mastery of their own knowledge of L1 (first language) so as to develop the expected communicative competence in L2 (second language).

In many regards, grammar is supposed to be taught implicitly by being embedded in a functional teaching approach. Nevertheless, for quite some time, teachers have been insisting on traditional "signalling", or asking the learners to "notice" grammar or language differences in form, and some structural changes.

The previous "noticing" can be achieved by using different colours, markers, sounds (such as "right" or "wrong" horns or buzzers), or any other semiotic resources (flashcards, shapes, and so on). It can even be done by asking the learners explicitly to realise some grammar points, which can contribute to rather than prevent them from learning.

Regarding the never ending debate concerning grammar, none of the positions or views about the most suitable way to deal with grammar should be

totally rejected or disregarded, particularly if essential variables, such as the EFL context our students are in, their cognitive stage, their inner motivations and previous experiences, are continuously overlooked. Moreover, if the impact of new technologies and "interactive" methods are being incorporated in the classroom setting, such as platforms, e-books, I-tools, and other devices or applications, this might well facilitate learners' achievement of grammar competence, which is also part of the global communicative competence expected in a second/foreign language.

On balance, traditional and functional practices could have positive results with adults under certain condition, i.e. explicit signalling of common grammar mistakes and multimedia presentations, along with an emphasis on communication as a vehicle to master a foreign language. These conditions can be effectively mixed in order to strive for successful language learning.

The Literature Review

Concerning the role of multimodality in education and the use of technology, Gunther Kress mentioned in an interview with Farías (2008: 17) that: "Much of the knowledge is represented in other forms". He has shared different insights on how to reformulate the way multimodality is integrated and assessed in language settings.

In turn, Mayer (2001) proposed the so-called multimedia learning theory, which posits that optimal learning occurs when visual and verbal materials are presented together simultaneously.

"*Multimedia*" is defined as "media that uses multiple forms of information content and information processing (for instance, text, audio, graphics, animation, video, interactivity) to inform or entertain the (user) audience" (Mayer 2005: §1).

"*Multimedia learning*" is defined as the process in which "students use information presented in two or more formats to construct knowledge" (Mayer & Sims 1994: 389-390). The term "multimedia" refers to the idea that the teacher uses more than one presentation format (which can be animation and narration) to facilitate the learning process. "Multimodality" refers to the idea that "the learner uses more than one sense modality" (Mayer & Sims 1994: 390), which can be visual and verbal processing.

Due to the fact that students use different sense modalities to make meaning, and thus teachers are expected to use different modalities to present information, I have adhered to the previous definition of multimedia learning in this study. In other words, by means of using different formats such as flashcards, on screen text and signalling clues, the effectiveness of Mayer's "signalling principle" was tested.

According to this cognitive theory composed by eight principles, the students are expected to engage in these five processes for deeper understanding to occur. In turn, this may encourage EFL teachers to reconsider and evaluate the way visual and written input is integrated in the classroom, in the same way technology and platforms or brand new devices are used to achieve certain specific linguistic objectives. In fact, other authors such as Plass & Jones (2005) have postulated an

integrated model of multimedia learning and second language learning to give an account on the different stages and requirements for learning to occur.

With regards to the signalling principle or principle eight, it states that students engage in "deeper learning when key steps in the narration are signalled rather than non-signalled" (Mayer 2005: 486). Signals give cues to the learners about what words and pictures to notice and enables their organisation.

The signalling principle tries to account for the student's cognitive overload. The learners are expected to focus or concentrate on certain specific things ignoring other information and using all the cognitive capacity to process the "signalled" information. In this research study, the students were expected to concentrate during the presentation stage on "mistakes" versus correct versions, to notice (as the functional approach suggests) their comparison, and to eventually grasp the correct version of some grammatically elaborated sentences. Pictures and words were combined in such presentations as the first and basic multimedia principle suggests in order for the students to learn in a deeper and better way.

Concerning the signalling principle, one study compiled by Mayer and Alexander in "The Handbook on Learning and Instruction" (2011) suggested that people learnt better from multimedia lessons when the essential words were highlighted. Signalling involved adding voice emphasis to essential words, adding an outline, adding headings, or adding a graphic organizer. In this way, the learner might be better able to make connections between the essential verbal material and the corresponding portions of the visualization. Modest preliminary support for the signalling principle was seen across three experimental comparisons involving a computer-based multimedia lesson on how airplanes achieve lift, and paper-based lessons on topics such as lightning, experiment and biology. Signalling may be more effective when the display is complex and when it is used sparingly.

Despite the fact that Mayer (2005: 192) concluded that people can learn more deeply from a multimedia message where information (in this case sentences containing mistakes and correct version) is signalled rather than non-signalled, the effects of the previous experiments were not strong. Furthermore, they were based on only three tests, which means that support for the signalling principle, according to him, should be considered promising but still preliminary.

In an effort to understand the role of images and the way that students make meaning, research in the field of foreign language learning in Chile includes a recent study conducted by Farías et al. (2014). They compared three different groups exposed to concrete vocabulary in English as a foreign language. The difference was in the modes in which the lexical items were presented. The first group was shown the new vocabulary via on-screen text and narration, the second group was exposed to on-screen text, narration and video, and the last group was exposed to on-screen text, narration and still image. Results revealed that the latest group retained more lexical items, suggesting that still images helped more than text and video in vocabulary learning. Another important finding was the fact that actions were better represented through videos than through still images, and that more attention was paid to narration in the group exposed to on-screen text and narration.

With regards to prior research on learning and instructions with multimedia in particular, Mayer and Alexander (2011) compiled different studies carried out outside the USA, which contains chapters on topics such as learning a second language and learning to write and read. However, and as confirmed by this cognitive psychologist researcher, there was *no* previous testing on the effect of the signalling principle in the area of second or foreign language learning and grammar mistakes. Thus, this piece of writing is original and relevant in the field.

On a different dimension, the focus on grammar within a wide range of teaching approaches and its role in language teaching and learning itself has been debatable for quite some time. Questions such as what grammar, when and how to teach it were already discussed by Ellis (2006: 103) who also stresses the idea that:

The acquisition of the grammatical system of an L2 is a complex process and almost certainly can be assisted best by a variety of approaches. But what is important is to recognize what options are available, what the theoretical rationales for these options are, and what the problems are with these rationales. This is the starting point for developing a personal theory of grammar teaching.

With regards to grammar teaching, the evidence in Chile shows that a lot of EFL decision makers, administrators, curriculum developers and heads of departments skip or decline the idea of concentrating and incorporating any explicit reference to language form in the classroom setting, and decide to "replicate" an L1 learning environment postulating that L1 and L2 processes are parallel.

Nevertheless, Mitchell and Myles (2004: 78) postulate that second language learners in fact, go through some stages that differ from the ones they did when learning their first language. Moreover, they draw three important conclusions that can account for such differences:

- *Second language learners are cognitively mature;*
- *Second language learners already know at least one other language;*
- *Second language learners have different motivations for learning a second language (language learning does not take place in order to answer the basic human need to communicate).*

According to Larsen-Freeman (2003: 19-20), being able to use grammar structures does not only mean using the forms accurately; it also implies using them meaningfully and appropriately. This author states, concerning the role of teaching grammar, that:

It is difficult to refuse the statement that grammar can be acquired naturally because such is the case with native language acquisition. More to the point here, many of us know of successful second language learners who have picked up the language on their own, that is, have learned it

implicitly through immersion in an environment where the language is spoken ... And helping our students learn faster than they would on their own may well call for explicit teaching and learning to complement the implicit learning that they naturally do.

In other words, she contends that in contexts such as Chile, teachers should evaluate and reconsider the idea of implicit grammar teaching and possibly teach the students differently. Following this line of reasoning, functional and meaningful activities integrating multimedia presentations or pictures, for instance, along with explicit grammar teaching at the beginning, were the main components that I intended to prove beneficial or acceptable in our contexts.

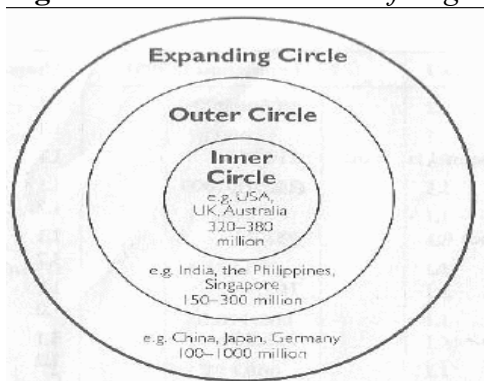
Another issue that is still debatable points out that second languages could involve the extra polarisation of the so called "Critical Period Hypothesis" for L1 to an L2, according to Lennerberg and Bickerton (cited in Brown 1994). This period would be described as the one in which the brain is prepared to learn a first, and in turn a second or any other languages. Second language researchers Morris, Fledge, and Thomson (cited in Brown 1994) postulate that this period would occur around puberty, beyond which point people seem to be relatively unable to acquire a native-like accent in their second language.

Despite the fact that the CPH for second language acquisition remains unanswered, it is worth mentioning that the thirty participants of this study were in the latest part of or even beyond puberty. This means that if Lennerberg's hypothesis were correct, students in Chile would not succeed in mastering a second language accent, which means that spending a long time encouraging people to adopt a native-like accent model as a reference to judge our students' achievement would not be appropriate and fair.

Nevertheless, a less pessimistic view comes from the idea that students in Chile learn English as a foreign language, and that it differs from English as a second language. In other words, the only context for Chilean students to fully learn English is the classroom setting, and beyond this context they would encounter only few or no further possibilities to consolidate contents. This means that EFL teachers should take advantage of every single chance to compensate the lack of ideas and aim at developing the acceptable communicative competence to convey meaning in a foreign language, rather than adopting an English native accent.

With regards to EFL, Kachru (cited in McKay 2002) described three concentric circles characterising the roles of English around the world. These circles are called: the *Inner Circle* (the primary language is English), the *Outer Circle* (English is spoken as a second language), and the *Expanding Circle* (countries where English is spoken as a foreign language i.e. Chile). The amount of speakers who speak English in these three diverse contexts are shown in Figure 1.

Figure 1. *The Three Circles of English According to Kachru's Categorization*



Source: McKay 2002: 10.

On the one hand, the fact that English is learnt in countries that belong to the "Expanding Circle" means that there is not a local model of English; there are also fewer possibilities for the majority of the students to consolidate contents and keep practising their English. Most importantly, the Chilean syllabi and local curriculum offer few chances for the students to learn other subjects in English.

According to Brown (1994), one issue in second language teaching is the differential success of children and adults in learning a second language. With regards to cognitive differences among children and adults, one points out the lateralization of mental functions, which may be due to the dominance of one hemisphere or to Piagetian's view on mind (abstract thinking) that meaningful learning may be more difficult as L2 learners get older.

Another vital distinction that must be made is between acquisition and learning. According to Krashen (1988), second language acquisition is understood as the process of picking up a language other than one's first language by means of paying attention to meaning rather than form. On the other hand, second language learning is considered the process of receiving *formal language instruction* by means of explicit grammar and language explanations. The latter conscious process is the one most students in Chile and the Expanding Circle go through.

Another controversial idea suggested by Selinker (1972) is that those adults (merely 5%) who "succeed" in learning a second language so as to achieve a native speaker competence - have somehow reactivated the so-called *Latent Psychological Structure* described by Lenneberg (1967). However, a vast majority of second language learners fails to achieve native-speaker competence; in other words, most learners seem to activate a different mechanism after puberty.

With reference to the idea of "awareness" and grammar, Schmidt (1993: 208) presents different issues on the role this concept plays in learning. He puts it as follows:

When one speaks of having learned something unconsciously, it means that something was learned unintentionally, as a by-product of doing something else. Children acquire the grammar of their first language unconsciously in this sense, as a by-product of communication and socialization. Adult second language learners may want to learn grammar, or their teachers may want them to, but perhaps adult learning is also

more effective when learners are concerned only with the communication of meaning.

Despite the fact that the previous idea focuses on communication, Sketan (cited in Schmidt 1993) suggests that attempts made by adults to learn second languages incidentally (learning without intention) through communication are only partially successful.

The previous controversial and inconclusive ideas might prove that, to some extent, deliberate or explicit attention to grammatical form based on communication (functions in this study) seems to be necessary.

In cognitive psychology (Long 1991, Schmidt 1993, Ellis 1995), implicit learning is defined as a process in which learners are not at all *aware* of the mechanisms and the path they go through when apprehending certain specific outcomes, whilst explicit learning is more evident as the students are able to verbalize or reproduce what they have learnt (the use of memory). However, according to Schmidt (1993), there is *not* total consensus whether implicit learning is possible without some degree of awareness, and this is still unproven. In other words, there is not total evidence that what is observable and described as unaware exactly accounts for this. Furthermore, this idea can also apply to the grammar learning process, which means that there is no total consensus on the extent to which implicit presentation of grammar really occurs within a functional teaching approach.

A different viewpoint highlights the fact that some teachers believe that people can learn language without any explicit information about grammar. There is an assumption that EFL students can somehow learn foreign languages in the same way they did when learning their L1. Richards and Schmidt (2010) suggest that implicit learning would *not* be accompanied by awareness that one is actually learning something.

According to Lightbown and Spada (2006: 190), teachers are responsible for helping the students do their best; this includes "the provision of explicit, form-focused instruction and feedback on error".

The surface structure taxonomy proposed by Dulay et al. (1982) was chosen for this piece of work. This taxonomy is based on the ways surface structures are altered in erroneous utterances or sentences. According to this taxonomy, there are four ways in which learners modify target forms: *omission*, *addition*, *misformation* and *misordering*.

Errors of *omission* refer to an element that should be present but has been omitted. *Addition* is the presence of an element that should not be part of the sentence or utterance. *Misformation* is the use of the wrong form or morpheme or structure. *Misordering* errors are incorrect placements of a morpheme or group of morphemes in an utterance.

Considering the literature reviewed as well as some controversial issues about second language learning, some tentative facts were generalized about the current reality of Chilean students learning English and the adult participants of this piece of research, as follows:

- All these students mastered a first language and, therefore, could tentatively benefit from the abstract thinking they possessed to receive explicit grammar instruction.
- The Chilean context does not offer real or authentic opportunities for the students to acquire subconsciously the rules of grammar and thus develop communicative competence in English. This means that devoting a lot of time in the classroom to "pretending" our students were in a second language context and to learners acquiring a native-like accent (as part of an inner or outer circle) would be utterly unnecessary.
- In spite of the previous idea, we know that technology is widespread and the majority of the students are exposed to social networking sites, platforms, online material, etc. However, very little has been proven concerning the real effect of such amounts of new technological input in learning a second/foreign language and grammar in particular. The fact is that there are more opportunities for students to be more exposed to L2.
- The participants for the sample were young adults (after puberty) who possessed certain characteristics that may have differed significantly from younger learners, such as different motivations and cognitive processes (abstract thinking). Most of the hypotheses reviewed above are still quite pessimistic concerning learning a second language after puberty. This may possibly suggest a need for quick work to obtain grammar rules from the very beginning and a later focus on a balanced grammar-functional approach to help them achieve the expected communicative competence in a second/foreign language.

Methodology

According to the traditional quantitative and qualitative distinction, this was a mixed methods study, including qualitative as well as quantitative instruments to collect and analyse the data. On one hand, it was a qualitative study, as a survey was administered to elicit data concerning some frequent mistakes and the way EFL teachers in Chile coped with them. On the other hand, it also happened to be quantitative as before and after the "treatment" and the implementation of some multimedia presentations highlighting some frequent mistakes, a post-test (in two stages, written and oral) was deployed in order to measure the number of grammar mistakes the students of the experimental group recognised and orally produced after being explicitly shown seven frequent mistakes within an adapted functional approach.

Considering the fact that the two groups (experimental and control one) were arbitrarily chosen due to the impossibility of randomization of the subjects, the study was also quasi-experimental. Moreover, it was exploratory due to the fact that in the literature review, different concepts and controversial topics connected with second language learning/acquisition and teaching grammar were reviewed to justify the procedures, instruments, and controlled variables described henceforth.

Hypotheses

H1 (working hypothesis)

Explicit signalling of grammar mistakes using clues or highlights during the presentation stage in an adapted functional approach will be more effective for learning EFL.

Null Hypothesis 1

Explicit signalling of grammar mistakes using clues or highlights during the presentation stage in an adapted functional approach will not be more effective for learning EFL.

Alternative Hypothesis 1

There is total consensus among EFL teachers on the identification and anticipation of frequent grammar mistakes in a given specific language programme.

Alternative Hypothesis 2

There is total consensus among EFL teachers on how grammar mistakes should be dealt with, either explicitly or implicitly.

Objectives of the Study

The following general and specific objectives were carefully designed as guidelines of the present research study.

General Objective

- To evaluate whether Mayer's signalling principle, which states that students learn more deeply when cues are added and highlighted, has better effects on the English learning process of previously identified frequent grammar mistakes.

Specific Objectives

- To evaluate comparatively the results from two groups being exposed to two different presentation modalities and see if there are significant differences between them.
- To collect data about some frequent grammar mistakes EFL teachers in Chile encounter systematically.
- To collect data about the way EFL teachers cope with some frequent grammar mistakes.

- To contribute to research in the field of multimedia learning, specifically on the testing of the signalling principle and the role of noticing when teaching EFL grammar.
- To test whether or not the students of the experimental group in the study are able to both recognise and orally reproduce the correct version of some frequent grammar mistakes in an adapted functional teaching approach.

Research Questions

Considering the previous ideas, three main research questions highlighting the nature and the starting point of this study were stated as follows:

1. What are the effects of the explicit signalling of previously identified grammar mistakes on the English learning process within an adapted functional teaching approach?
2. Could the explicit signalling of some frequent grammar mistakes have a better impact on the English learning process?
3. To what extent does the explicit presentation of some grammar mistakes differ from the implicit presentation of grammar within a functional teaching approach and an adapted version of this one?

The Problem Statement

As an EFL teacher myself, this study was intended to narrow the gap between theory and practice in linguistics by means of proving that the explicit signalling of some common grammar mistakes could be beneficial for adult students. Therefore, the main goal was to demonstrate that explicit grammar teaching could have a positive effect within an adapted functional approach. This opposes what most second language researchers and practitioners still claim, i.e. that grammar should be incorporated implicitly.

The expected positive effects could be tentatively successful if the way in which the presentation was done was based on signalling frequent mistakes in the text in order to contrast the correct and incorrect versions of previously identified grammar mistakes. This was expected to result in a significant increase in the identification of such mistakes in written recognition and a reduction of such mistakes in oral production.

The Procedure

The first part of this study was exploratory, consisting of collecting some frequent grammar mistakes by means of a survey and a revision of some mistake taxonomies in EFL by a group composed of ten Chilean EFL teachers of English (e.g. "He has 10 years old", rather than "He is 10 years old").

This survey included three sections: first, a general part in which the EFL teachers expressed freely some of the most common mistakes they encountered in the level described as Elementary at the university where the experiment took place. A second part was more specific, providing examples of grammar mistakes. They were further asked to circle those mistakes they considered generally "common" in class. A final stage asked the experienced teachers to describe the way they approached these mistakes in class (explicitly or implicitly).

The second part of the survey previously mentioned was also used as a pre-test to collect information in order to measure and select those common mistakes both groups (the experimental and control one) were not familiar with to consider during the experiment.

The study also qualified as being "quasi-experimental", since two non-randomized groups selected from the same university formed the sample for the second part of this study.

After analysing the information collected with the survey, a pre-test was designed to make sure the students belonging to the experimental and control groups were not familiar with such common grammar mistakes and later on integrated them in the teaching setting to test the working hypothesis.

Afterwards, the experimental and control groups were taught by the same teacher. However, they differed in the modes used in the presentation stage.

On the one hand, the experimental group was explicitly shown seven frequent grammar mistakes in accordance with the objectives of the lesson by means of images that illustrated one functional context and a common grammar mistake, signalled and crossed out in a different colour. Visual (images), texts, a wrong and a right sound buzz, and the instructor's voice explicitly highlighted the correct and the incorrect version of a sentence, and afterwards functional practice and correction prevented students from fossilising the grammar mistakes encountered (dialogues, solving a problem, giving advice, etc.).

On the other hand, the control group was only provided the same flash cards or pictures to set a meaningful context, and during the functional practice (lacking explicit reference to grammar mistakes), correction happened only implicitly if some mistakes arose.

Figure 2. *Example of a Multimedia Presentation Used With the Experimental Group versus a Single Slide Used with the Control One*

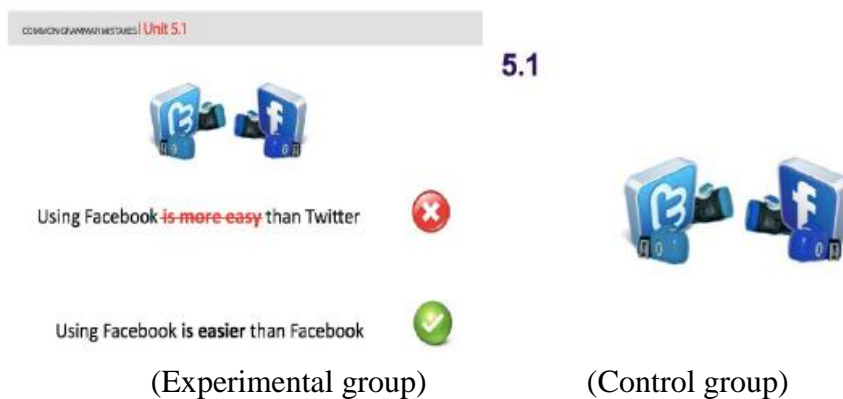


Figure 2 shows an example of the materials used with both the experimental and control groups and the way the information presented differed during the teaching approaches: the experimental group was shown some grammar mistakes and the correct version along with sound buzzers and pictures, whereas the control group was only shown the pictures and then integrated them in communicative tasks in an implicit way.

Finally, the last instrument administered to test the working hypothesis was a post-test consisting of two stages: *recognition* of grammar mistakes and an *oral test*. The students were organized into 6 pairs and one group of three (a total of 15 participants). This oral test was conducted at the end of the semester. Its purpose was to prove that the students benefited from the explicit signalling by measuring if the experimental group were able to not only identify grammar mistakes, but also to orally produce the correct version of them in at least one functional context (oral test). That was the main purpose for the functional practice implemented during the teaching process.

Applying and Testing the Signalling Principle

Having chosen the seven grammar mistakes, flashcards and methods for signalling such mistakes with colours and sounds were created on the basis of my principal goal: to highlight some frequent mistakes that happened to be unknown by the experimental and control groups. These mistakes were taught in the presentation stage of the units of the coursebook in two different ways (Table 1). The information was provided to the experimental group through the use of the formula picture + brief text (highlighting and signalling the correct or incorrect version of frequent grammar mistakes in each situation) + sounds for the correct and incorrect version + correction of such mistakes in the classroom by asking the learners to notice grammar differences + functional practice. The information was given to the control group through picture + implicit input of the correct sentences + little implicit correction of such mistakes in the classroom, primarily focusing on communication + functional practice.

Table 1. *Differences in the Training between the Experimental and Control Group*

Experimental group	Control group
Digitalised Flash cards – pictures	Digitalised Flash cards – pictures
Written text on a computer screen signalling some common mistakes within a specific situation.	Implicit input provided by the instructor (no explicit reference to common grammar mistakes at all).
Mistakes are explicit in the presentation stage. (Noticing = signalling mistakes) Emphasis on both fluency and accuracy.	Error correction included little oral reformulation on behalf of the instructor omitting explicit grammar correction in the presentation stage. Emphasis on fluency and communication.
+ Functional practice	+ Functional practice
Textbook (6 units)	Textbook (6 units)

Findings/Results

The empirical research component of this paper encompassed three different parts as described in the methodology chapter. This section outlines the findings from the broad level investigations using the following three instruments used:

- Survey implemented to teachers
- Pre-test with eleven mistakes administered to both experimental and control groups to choose the seven mistakes to be taught.
- Post-test given in two stages:
 - ✓ Recognition stage: Same pre test and comparison.
 - ✓ Production stage (oral test): comparison.

Considering the results obtained by the statistical analysis based on the survey administered, the following eleven mistakes indicated as often identified or anticipated by the teachers were incorporated in the pre-test to test both non-randomised chosen groups.

1. He *is* actor
2. I *can to* play soccer
3. *Do you can?*
4. She can *rides* a horse
5. *Do you can* ride a bike ?
6. Transantiago is *more cheap* than ...
7. A car is *more* cheaper than ...
8. This city is the best *than* ...
9. I would like *a* bread
10. She doesn't have got
11. Food (any uncountable) are healthy

Regarding the pre-test, choosing mistakes 3 - 4 - 5 - 7 - 8 - 10 - 11 for the treatment after statistical analysis was significant and valid because both groups were unfamiliar with them in advance.

Concerning the post-test, in order to evaluate the students' final results after three months of instruction, a final test was given. The students went through two different stages: **recognition** and **production**. The first stage was based on the recognition of written grammar mistakes where the students had to choose the correct version in a functional dialogue. This was the same as the pre-test already administered. This test was implemented in order to identify the mistakes presented in class and the strategies used by the students while making such mistakes previously highlighted and explicitly presented to them during the treatment.

A normality test to measure the total results in the post-test was implemented. The results indicated that with a level of significance of 5%, there is a statistically significant relationship concluding that the results obtained by both the

experimental and control group in the post-test followed a normal distribution (P value control = 0.094 – P value experimental = 0.067). Thus, a parametric test was used to compare the average results by means of a T-Student for independent samples. In these regards, the hypotheses taken into consideration were:

H0: The total scores obtained by both the experimental and control group are similar on average.

H1: The total scores obtained by both the experimental and control group are different between them on average.

The P-value result was 0.314, which means that with a level of significance of 5% there is statistical evidence to reject the null hypothesis, that is to say, the results obtained by both groups are similar on average.

These results indicated that, if the experimental group composed of fifteen students had problems or had some disadvantages compared with the control group, in light of these results there was no significant difference between both groups. Needless to say, both groups improved and the working hypothesis was partially confirmed. This means that explicit signalling would be as effective as implicit functional teaching of grammar. Furthermore, a second stage (the reproduction stage) would indicate that the experimental group benefited more in oral production.

The total number of correct answers before and after the experiment, as well as the statistical analysis of the pre- and post-test obtained by both groups, are presented in Diagrams 1 and 2. Table 2 shows the statistical analysis of the results obtained by the control and experimental groups in the pre and post tests.

Diagram 1. Correct Answers Obtained by the Experimental Group in the Pre and Post-Test of the Experiment

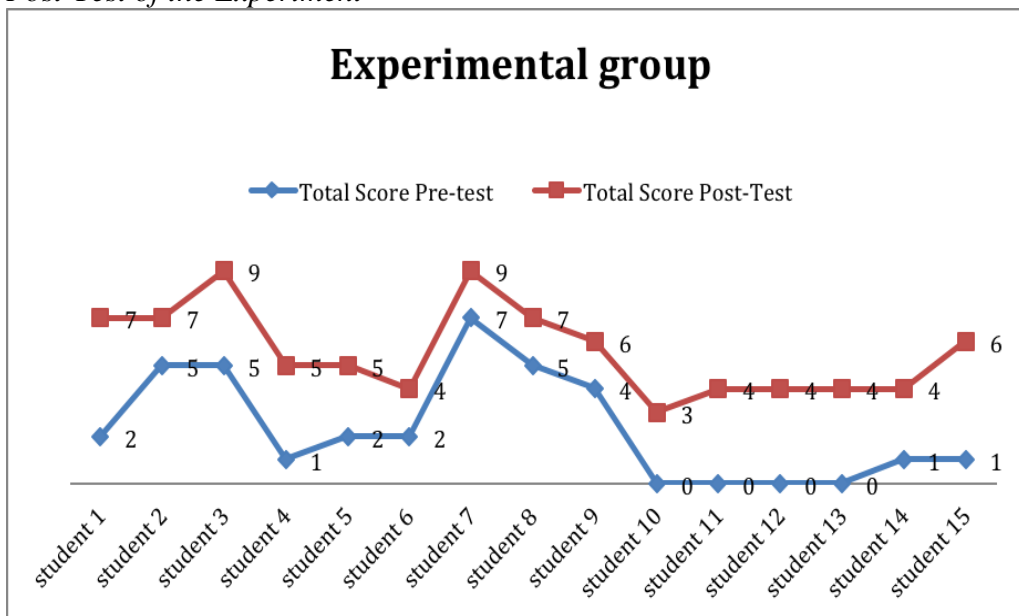


Diagram 2. Correct Answers Obtained by the Control Group in the Pre and Post-Test of the Experiment

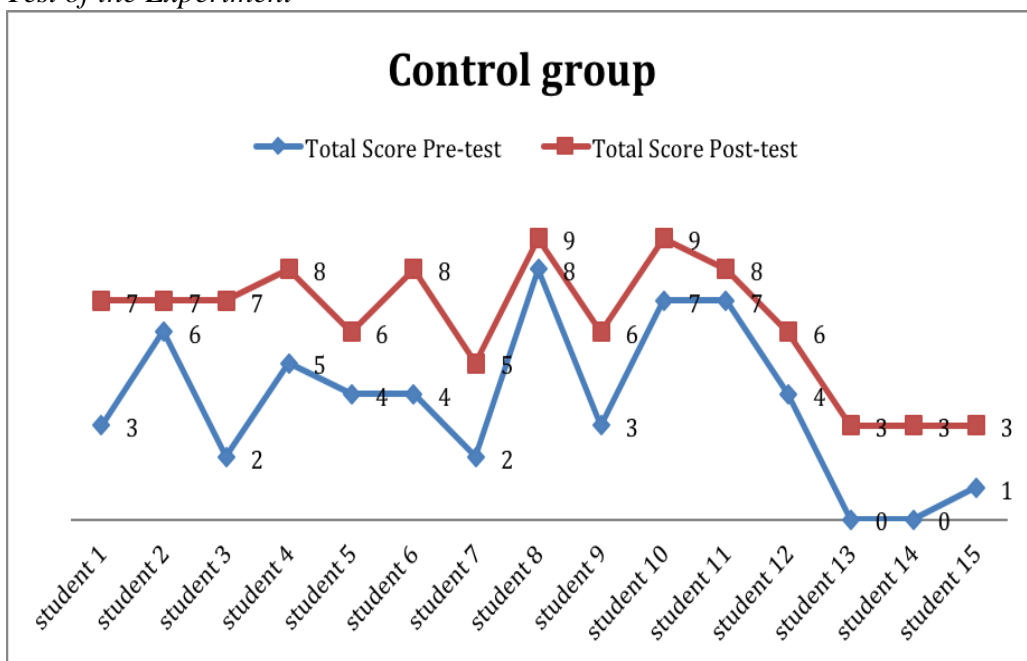


Table 2. Statistical Analysis of the Results Obtained by the Experimental and Control Groups in the Pre and Post-Test

T test for two independent samples / Bilateral test	
Confidence interval for the mean is 95%:	[-0,786; 2,357]
Difference	0,786
T (observed value)	1,028
T (critical value)	2,056
GDL	26
P-value (bilateral)	0,314
Alfa	0,05
Interpretation:	
H0: the difference in the statistical average is 0.	
Ha: the difference in the statistical average is different d0.	
Since the 1 p-value obtained is higher than the level of significance Alfa than = 0.05	
The null hypothesis H0 can be accepted.	
The risk of rejecting the null hypothesis H0 when it is true corresponds to 31,35%.	

Table 3. Rubric Used to Analyse the Oral Post-Test

Number	Criteria
0	Not applicable or structures (grammar) were not used.
1	Mistake was not made – Grammar was successfully used.
2	Mistake was made and no attempts to correct or monitor were identified.
3	Mistake was made and a few attempts to correct or monitor were identified.
4	Mistake was made and self-monitoring and self-correction strategies were immediately used and thus properly corrected.

Results of the Oral Performance

Having analysed the results, and used the rubric previously described (Table 3), the conclusions of the oral test are as follows. On the one hand, the students belonging to the experimental group got 15 phrases correct versus 12 correct answers of their counterpart, the control group. On the other hand, the experimental group had 25 phrases with some kind of mistake versus 22 in the control group. These differences do not show any statistical difference between both groups. However, according to Diagram 3 and Diagram 4 and the criteria used to compare both groups, some important conclusions were drawn.

Diagram 3. *Post-Test Results in the Production Stage (Experimental Group)*

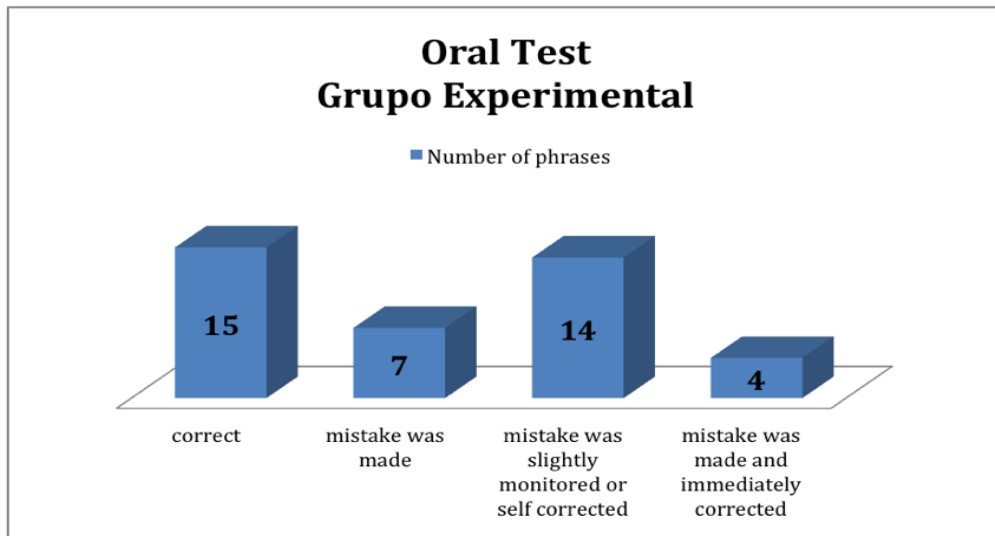
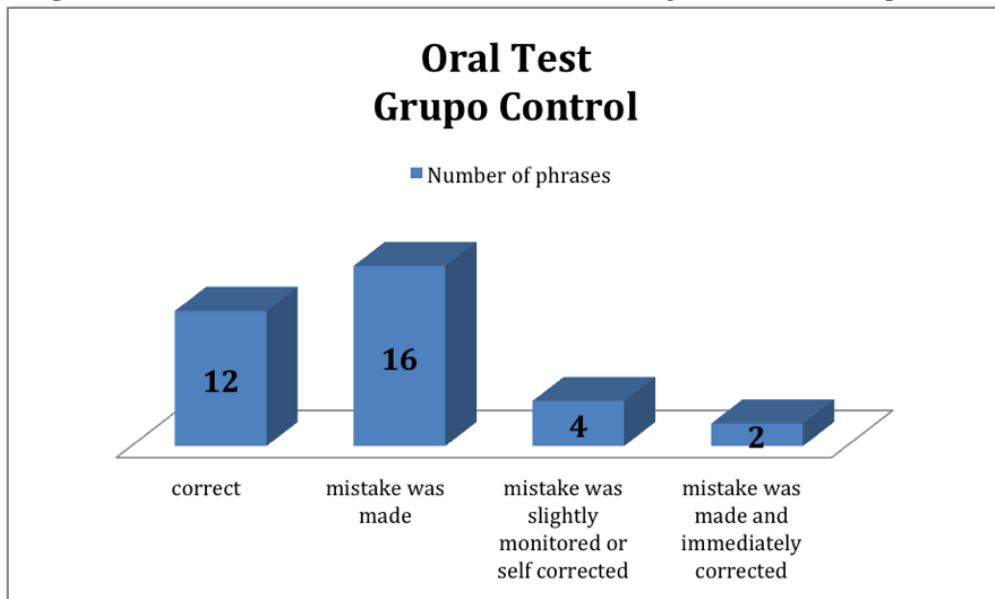


Diagram 4. *Post-Test Results in the Production Stage (Control Group)*



Diagrams 3 and 4 show that:

1. The experimental group had more correct sentences than the control group (15 v. 12, respectively).
2. The control group made more mistakes (16 v. 7).
3. The experimental group monitored or self-corrected more than the control group (14 v. 4).
4. The experimental group had more correct answers right after correcting the sentences than the control group (4 v. 2).

These differences could be perfectly attributable to the explicit signalling of some frequent grammar mistakes during the teaching process. This did not only benefit the experimental group, but also helped them to slightly monitor and self-correct some sentences and thus come up with the correct answers during the production stage.

Table 4. *Results Obtained in the Recognition and Oral Production by the Experimental and Control Groups*

Results	<i>Experimental + Signalling text (grammar)</i>	<i>Control Group - Signalling text</i>
<i>Recognition</i>	+	+
<i>Oral production</i>	+	-

Finally, the results depicted in Table 4 partially confirm the working hypothesis of this study, which stated that the explicit signalling of grammar mistakes using clues or highlights during the presentation stage in an adapted functional approach would be more effective for learning EFL.

Qualitative Results

Moreover, with another main purpose being to produce relevant findings on how most teachers in the English programme coped with grammar mistakes from a qualitative point of view, a survey was utilised that included the following question:

How do you usually deal with the grammar mistakes mentioned above when planning your lessons and teaching?

The answering options were the following:

1. I explicitly explain such mistakes when teaching. I say for instance "be careful with this".
2. I try to clarify them implicitly.
3. I never refer to grammar in class.
4. I skip these mistakes, as they are part of the process.
5. Other.

Teachers who chose number 5 to answer the previous question were asked to explain the way they usually tackled the 16 grammar mistakes identified by them and classified above.

The majority of the teachers chose number one (I explicitly explain such mistakes when teaching. I say for instance "be careful with this"). The other ones chose number 5. Some examples for those who chose number 5 are shown below:

Opinion one:

"I mention some examples or write them on the board and correct the students if they are wrong, then I explain such mistakes. I also use different markers to emphasis some problems or good versions of grammar points".

The teacher's opinion above points out the use of different markers (signalling principle) to show some mistakes explicitly.

Opinion two:

*"I usually make use of mistakes so as to teach some points. If it is a little mistake I correct it without any explanation. I just rephrase what they said but using the correct words.
I correct activities as per class, so I invite students to read their answers, then I ask the other students if they agree with the answer if they don't, I ask them to tell me their own answers and explain why they have a different proposal.
I usually ask them to discover the mistake and to give reasons".*

The opinion above can also be understood as "explicit" because the teacher uses mistakes to teach some points. This opinion differs from the previous one in the sense that the students are asked to play a more important role and become more responsible for the mistakes they have made.

Opinion three:

"I sometimes try to make them discover the rules, but in my experience (teaching this level several times), most of the students need the rules and explicit

The teacher's opinion above suggests the idea that he or she is aware of the fact that some students are at different levels and, based on his or her experience, need explicit information and rules for learning to occur.

This interview section of the survey was designed to address the most controversial issue discussed in this paper, which pointed about the teachers' perceptions regarding the correct way to address grammar mistakes.

Due to the fact that most teachers chose alternative number 1 when dealing with grammar mistakes, and those who chose number 5 could still be understood as utilizing explicit instruction, according to the literature reviewed in this research study, the second alternative hypothesis, which stated "*There is total consensus among EFL teachers on how grammar mistakes should be dealt with (either explicitly or implicitly)*" is confirmed. In other words, there is a clear view with regards to the way grammar mistakes are to be presented in class (explicitly), and this is linked to explicit instruction, in spite of the teaching approach they are using or believe to be the most effective one.

Discussion

A replication of this study should keep the same conditions and consider a larger group of EFL teachers from different, randomly chosen institutions and follow their performance for longer periods of time (longitudinal studies). It is also advisable to compare various groups systematically exposed to explicit signalling of common grammar mistakes and find out the moment the students integrate the correct versions and what cognitive or mental processes allowed them to do so (apperception, noticing, etc.).

It would also be interesting to find out the possible effects of the signalling principle on the learning of other linguistic aspects, such as collocations, chunks, idioms, prepositions and phrasal verbs.

This study can also set the grounds for other comparative and empirical investigations. For example, a comparative study of books and materials using the signalling principle in visual texts or grammar charts versus those that lack explicit information of grammar points or ideas.

Conclusion

In light of the number of approaches, methods and controversial issues regarding second/foreign language learning and teaching, the history of our work as EFL teachers is usually described as cyclical and dual. Dual, in the sense that most of the theories and ideas that describe the long journey of learning a second language move back and forth between the rationalist field and the empiricist one. It is also cyclical, in the sense that the different misconceptions with regards to language teaching usually force second language researchers and EFL teachers to reconsider certain practices that over the years have been stigmatised or neglected.

One such controversial issue is how grammar is incorporated in the classroom setting. This component of language has always been debatable and is likely to continue behaving this way. However, it seems that the definition provided by Larsen-Freeman (2003) points us in the right direction concerning how we should ideally tackle this component. Thus, grammar should not be considered

only as a mere set of rules, but also as a way to present language in accurate, meaningful and appropriate functional or communicative contexts.

Learning a foreign language surely involves a long journey, especially for learners belonging to the Expanding Circle proposed by Kachru. They have to go through a process of creative construction that involves trial and error in which it has been proven that the students learn better when messages are designed in ways consistent with how the human mind works and with research-based principles. Taking this into account, different signalling techniques should be used to gain the students' attention and reduce extraneous processing when aiming at focusing on specific linguistic aspects in multimedia presentations incorporated into traditionally implemented classroom practices.

From this point of view, this piece of research represented an effort to explore, re-examine, re-evaluate and analyse the explicit teaching of grammar as a usually misunderstood teaching practise. It also represented a way to combine some theoretical ideas deriving from different authors in applied linguistics and multimedia learning - with a principle that had never been tested with this field before - and turn it into a more practical study that can be applied to language teaching.

The main purpose of this research study was to explore and discover, from a cognitive and multimodal point of view, the way in which a group of fifteen participants could benefit from explicit signalling of some frequent mistakes within an adapted functional teaching approach by means of technological devices. In turn, its counterpart lacked the explicit signalling of mistakes anticipated by a group of experienced EFL teachers.

Despite the fact that results cannot be generalised because of the small size of the sample, the lack of randomization, and the testing occurring under certain conditions (adults, a given specific university, using frequent grammar mistakes), the results were not only strong (as both groups increased or identified the mistakes), but also meaningful to test this principle in the field of foreign language learning environments.

Considering the statistical analysis, there was no significant difference between both groups in the recognition stage as both groups increased their results using both teaching approaches (the functional teaching approach and the adapted one). However, the experimental group performed better than the control group in self-correcting and monitoring their oral mistakes, partially confirming the basic premise of multimedia learning on the advantage of presentations including signalled text (grammar), which learners actively integrate into a coherent linguistic and mental model.

One significant contribution of this research study was to continue paving the way for testing Mayer's principles in the area of second/foreign language learning. At the same time, the study provided reliable evidence so as to encourage teachers not to discard explicit grammar teaching in EFL contexts in which the use of new technology is becoming a common practice in most Chilean educational institutions. This trend to achieve some expected outcomes in terms of English learning ignores the new demands in cognitive strategies our students should possess, as well as the new teaching techniques required by the teachers

when conducting their lessons.

Concretely speaking and in light of the constructs that backed up this piece of research, some pedagogical implications imply the necessity of visual literacy, also stressed by the dual coding theory in multimedia learning proposed by Mayer & Sims (1994). This theory suggests that for better learning to occur words should be presented along with pictures. This idea means that grammar (linguistic elements) should also be linked to some visual stimuli, as it was done in the quasi-experimental portion of this research, in order to help learners store the new linguistics elements in their long-term memory. At the same time, a reconsideration of the functional and communicative approaches in contexts such as in Chile would require the incorporation of activities and learning tasks that could encourage the students to "notice", "perceive" and link linguistic elements to visual input in order to make meaning and learn a foreign language in a better way.

The most important conclusion that can be drawn is that it was demonstrated empirically that presenting or teaching grammar explicitly under certain conditions did not affect the students as suggested by most EFL Chilean institutions. This means that in the worst scenario nothing would happen in the student's interlanguage, whereas in the best context the students would manage to be more "aware" and thus notice some potential mistakes while speaking. This means that if our goal in EFL learning is to not only help our learners to be accurate in terms of grammar, but also to use the English structures in functional ways, some attention to explicit grammar can be necessary to accomplish this goal.

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