Teaching Grammar Using a Parallel Concordancer: A feasibility study

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ABSTRACT

Studies have illustrated several benefits of Data-driven learning (DDL), when students are researchers of the language using authentic language data (corpora), for learning grammar, including linking adverbials and phrasal verbs. However, few have examined the use of parallel concordancers, a tool that displays the same source-text in two languages side by side, although recent research points to potential benefits in helping learners notice L1/L2 differences. This study examined the feasibility of implementing a DDL approach to teaching L2 English grammar that presents a learning challenge to French L1 learners using a parallel concordancer, focusing on teachers' and students' perceptions on their training, the time needed, the completion of the tasks and the monitoring.

Three intact Cegep (college) ESL classes, taught by two teachers, used a French-English parallel concordancer, Tradooit, over a 6-week period. The teachers were first trained, and then created and taught three laboratory tasks emphasizing L1/L2 differences between French and English. During those labs, students completed a discovery task, a proofreading task and an investigation task to correct L1 interference errors. Student performance was measured through accuracy scores on these tasks, and student and teacher perceptions were recorded using observation notes, teacher logs, a post-study questionnaire administered to students, and semi-structured interviews. The results suggest that DDL can be successfully implemented and that students and teachers are willing to use DDL in the future. However, both students and teachers would have liked more guidance for selecting keywords and finding grammar patterns. Students were able to complete the labs within the time allotted, but with varying degrees of accuracy; some grammar features such as the tense-aspect system seemed to be more challenging.

Teachers could also have received more feedback on the labs. Implications include better training on pattern hunting and wording grammar patterns, and a better use of feedback.

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Chapter 1: Introduction

Language corpora have been around for decades, yet much remains unexplored. Examples include the British National Corpus (BNC) and the Corpus of Contemporary American English (COCA), which are free online databases of authentic language. They offer an array of possibilities for the language classroom for teaching vocabulary, but also offer learning potential for grammar. The field of corpus linguistics has enabled us to have a new look at authentic language by redefining different features of grammar, for example in terms of frequency of use and register. However, its application in the classroom for helping students learn features of grammar has been under-researched.

One use for corpora that has been explored in a number of studies is Data-driven learning (DDL), where students must find patterns across a variety of exemplars provided by a concordancer. This tool extracts all the occurrences of a word or a multi-word unit found in the corresponding corpus or corpora, and displays the search results or concordance lines, aligned and centered with the search term made salient through the use of boldface or highlighting (see Figure 1). This allows students to actively participate in their learning process by becoming researchers of the language (Timmis, 2015).

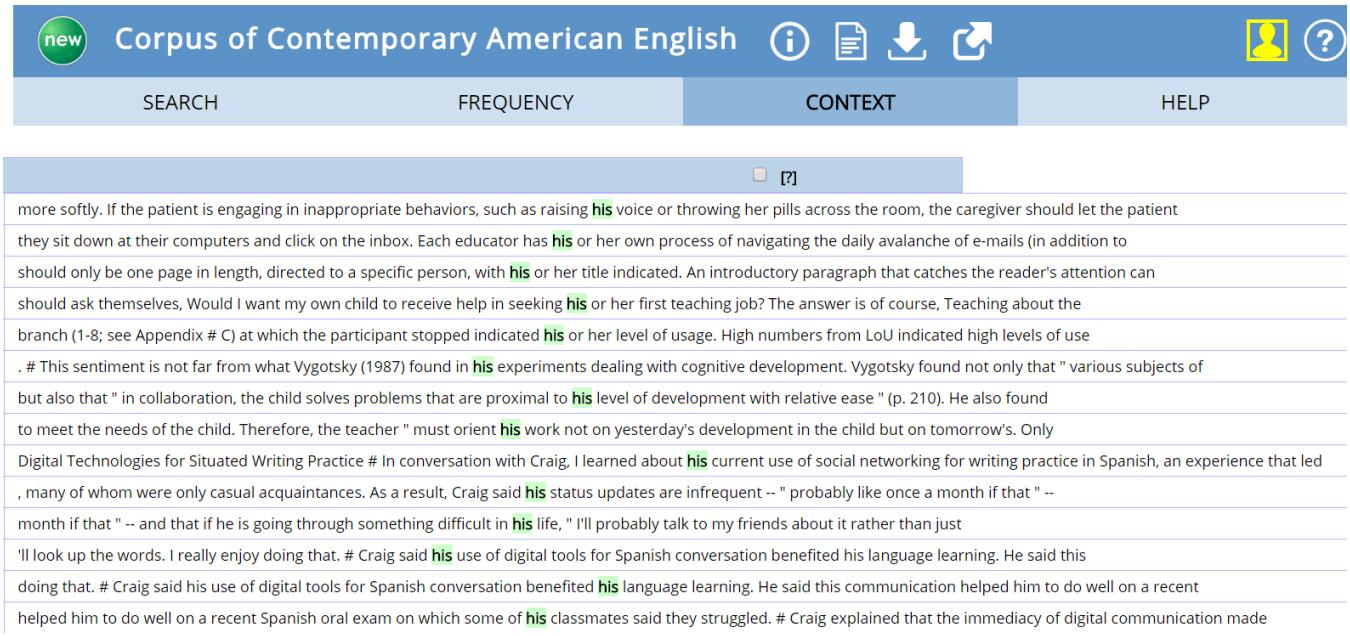


Figure 1. Occurrences of *his* in COCA

With initial guidance from the teachers, students can make hypotheses on what a particular pattern or rule might be and test it out. For example, using the data in Figure 1, the teacher might want the students to compare what follows *his* across the concordance lines, and also to notice what comes before, to find the link between the possessor and the choice of the appropriate possessive determiner. This way, students can understand that "his" is followed by either a singular or plural noun and sometimes included in the lexical chunk "his or her". Where only "his" is used, the possessor is either a male ("Craig") or indefinite ("the teacher" or "the educator"). In cases where the lexical chunk "his or her" is used, this disambiguates whether "his" is used for a male or for neutral gender. This investigation process can be repeated and applied to novel items students may want to search on their own.

Using corpora in the language classroom can also allow teachers to draw students' attention to different form and meaning challenges in L2 grammar. Following Larsen-Freeman's (2001) form/meaning/use framework, form involves the grammar structure (e.g. third person singular 's, irregular past form) and meaning refers to semantics (e.g. *can* means a possibility or ability). For example, in the case of using "can" in a question, students can search "can you" and would get the results in Figure 2. Syntax is a known difficulty in forming questions in English (Celce-Murcia & Larsen-Freeman, 2015), and students can get guidance on form issues by investigating these concordance lines. Interestingly, they get enough variation in their examples to find out that a basic question would start with "Can you" followed by a verb and a complement, as in "Can you describe the moment that you heard, in your words, a hiss-bang explosion?"

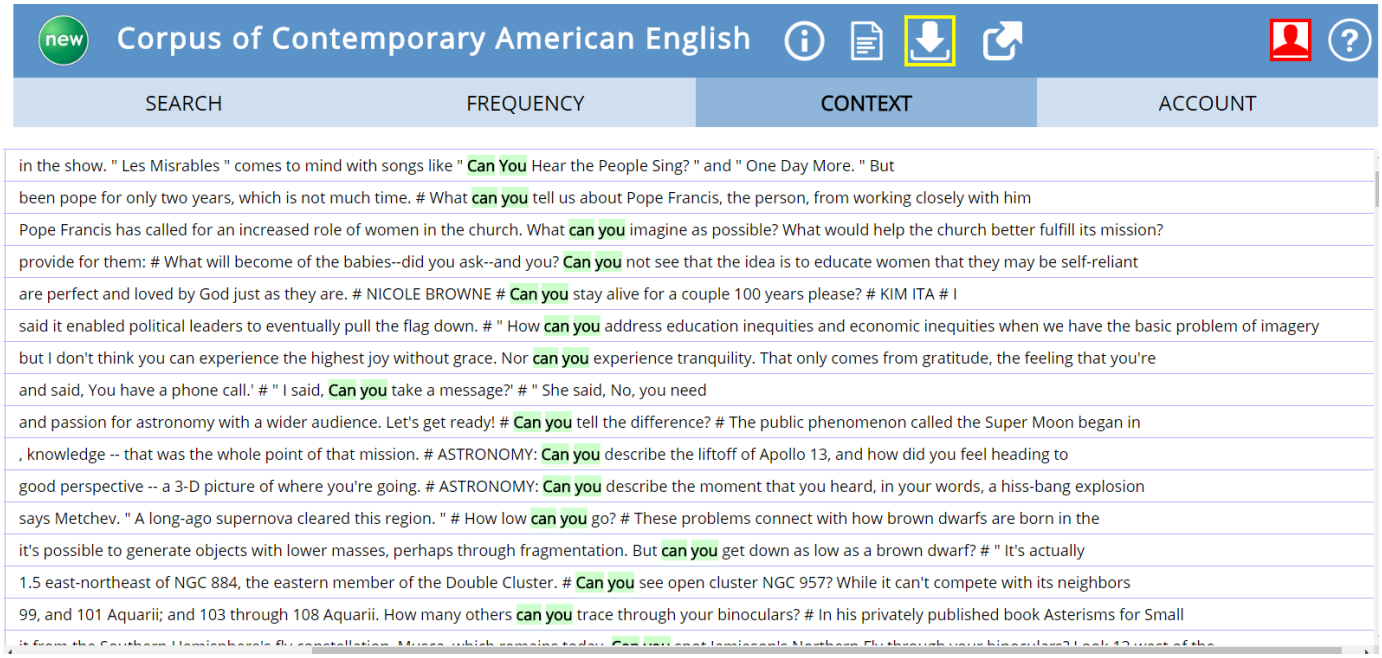


Figure 2. Occurrences of *Can you* in COCA

Following this procedure, students may discover Can-initial is for yes-no questions and it has the syntax of a wh-question, either on their own or with the help of the teacher. However, the inversion of the subject and the modal auxiliary can also extend as in “Nor can you” which shows that it is used in referring to previous information given. Thus, reversing the subject and the modal auxiliary is not exclusive to a question. If they search for “can she”, they also get the fact that the verb following is only used in its base form such as “Can she cook?” in Figure 3.

Figure 3. Occurrences of *Can she* in COCA

In using corpora to teach form, the form can be made salient through highlighting and comparisons. However, corpora can also offer benefits for teaching the meaning of a form, including the factors that govern the choice of one form over another. For example, in Figure 2, the exemplar “Nor can you” can pose a meaning problem. The concordance

line may give enough context for students to infer that “nor can you experience tranquility” aligns with “I don’t think you can experience the highest joy without grace.” If more examples are needed, then a quick search with the keywords “nor can you” can better illustrate the pattern (see Figure 4). Most concordance lines offer enough context to see that a negative statement precedes “nor can you,” which introduces a new negative element in line with what was just said. The context that provides the concordancer (some show the full paragraph when clicked on) helps students to infer meaning through a variety of examples, which is necessary to understand grammar. Not only is it a rich resource for data, but it is also quick to use. In the example with “can you” (Figure 2), it was also possible to investigate a related feature, “nor can you,” which came up in the results. Teachers who prefer not to address this grammar point can select the concordance lines before class to make sure students do not come across other features that might pose a problem. Other teachers might instead see it as an opportunity for students to deepen their understanding of grammar where authentic language use does not sort features out.

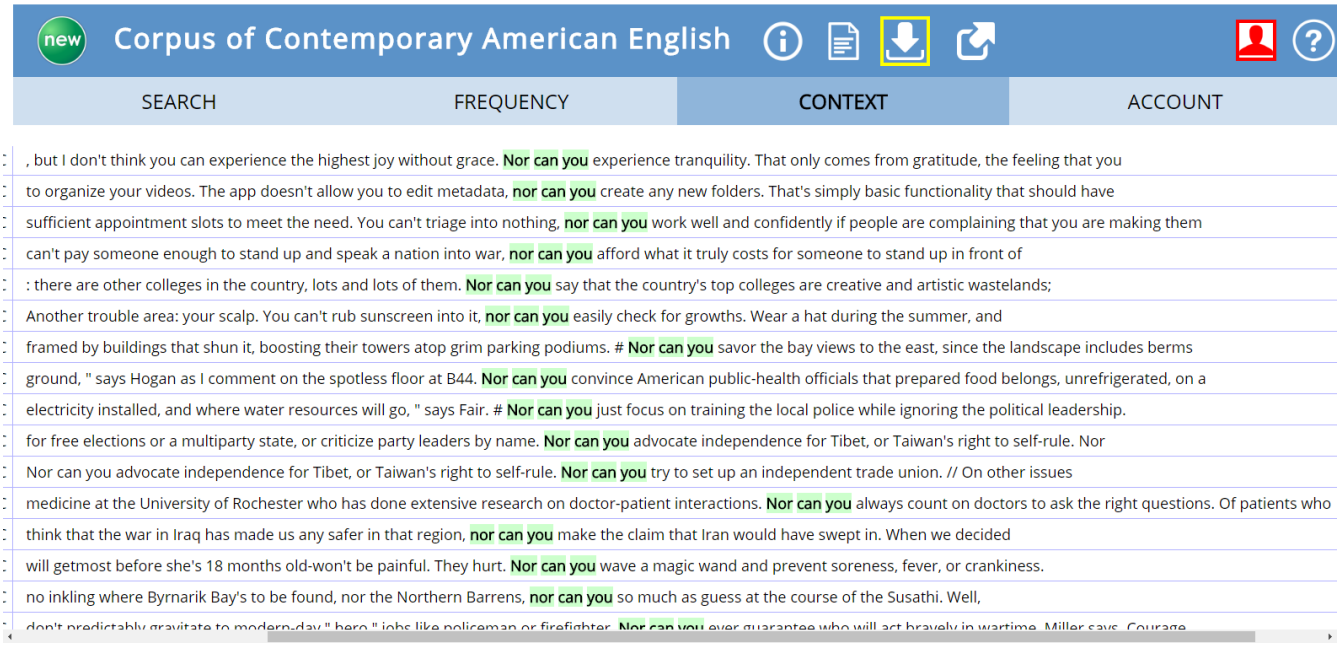


Figure 4. Occurrences of *Nor can you* in COCA

The structure of a concordance is well suited to addressing different meaning problems that learners struggle with. For instance, teachers who notice their students having difficulty with the use of the gerund versus the infinitive form of a verb could select a set of concordance lines using the COCA and prepare a paper-based activity where the students need to find the determining factors for choosing one form over the other. A variation of this activity would be for students to be instructed to use an online corpus and to find the patterns themselves for a given selection of verbs to see when one form is used over another (e.g., *like*, *confess*, *admit*, *help*, *dare*, etc.). These verbs are known to be challenging because of the form of the following verb and its intrinsic meaning (*I like dancing* versus *I like to dance*). In this type of activity, there is less control over the exemplars the students are exposed to, which requires them to be much more autonomous. In most studies, a worksheet with specific instructions helps them

through the process of searching the corpus, making hypotheses on their findings, and getting feedback from the teacher. The type of guidance provided is generally a step-by-step approach, where students are instructed to search for specific terms and must answer guiding questions. These are meant for the students to retrieve all the necessary data to help them in their hypotheses-making phase, as well as to test these hypotheses (see Appendix A).

This thesis is about exploring the learning and teaching possibilities of DDL, specifically using a parallel concordancer, for grammar in the language classroom. It is felt that it can be a useful tool for teachers to complement their classes and for students to have an active role in their learning of grammar. It is also an opportunity for students to discover L1/L2 differences they might have not have noticed before in the grammar they do not yet master; for teachers, it is a way to develop relevant material to use during their lab time to enable students to become independent users of the parallel concordancer. The main purpose of this project is to see if a DDL approach for teaching grammar that presents a L1/L2 meaning challenge can be implemented in the language classroom for young adults and to suggest different ways to improve its successfulness. The research addressed the training students received, the time they needed to complete the tasks, their independent completion of the tasks and their perceptions. For teachers, the training they received before teaching their first lab, the planning time to create their labs, the monitoring they provided and their perceptions.

Chapter 2: Literature Review

This chapter discusses the roots of data driven learning (DDL), what the DDL literature findings suggest for teaching grammar in the language classroom and how using this approach has so far been received. Particular attention is given to the potential of a parallel concordancer, a search engine that displays authentic language data in two languages, for teaching grammar, although not much research to date has examined its use. Finally, the need for testing the feasibility of using this tool in the language classroom is stressed, followed by the research questions that guided this study.

Johns (1991) was one of the first scholars to draw our attention to the potential of using corpora in the language classroom. The role of the student is reimagined, from being dependent on the teacher, to needing guidance to become an independent learner, and DDL was seen as a tool for mediation which promotes noticing, autonomy, and deep learning. There are several theoretical perspectives that support the learning potential of DDL.

First, DDL relies on Schmidt's Noticing Hypothesis (1995), which claims that conscious attention to specific aspects of the language is a requirement for learning to take place. One illustration of how noticing is promoted during DDL can be found in Mizumoto, Chujo and Yokota (2016). Japanese learners of English participated in inductive DDL activities designed to highlight how Japanese and English prepositions worked differently. The students were able to discover patterns that previously went unnoticed by using a concordancer illustrating how prepositions translate from one language to another. Guided by prompts, students filled out worksheets which revealed

their hypothesis-making process on how those differences between their L1 and the target language operated.

Second, DDL draws on a constructivist approach to language learning where learners make hypotheses and inferences to ultimately take the lead in their learning. This is described as discovery learning in the DDL literature (Flowerdew, 2015). It contrasts with textbooks that introduce grammar rules because "constructivism presumes that learners build knowledge actively, largely through inductive processes" (Collentine, 2000:45). When using corpora, students have access to, or *experience,* as Taylor (2012) calls it, authentic data where they get a condensed version of a target grammar feature in a variety of contexts, which in turn forces them to become more independent learners who can critically assess the language they analyze. An example of this approach is illustrated in Dilin's (2011) study of 41 students of an English university grammar course. The students had to select a lexicogrammatical problem they were interested in investigating (e.g. *None of* when used with a plural noun phrase is followed by a singular verb form as in *None of the students was injured*). They used the BNC-COCA to find examples and wrote a report about their findings.

Third, Vygotsky's (1978) sociocultural theory also supports DDL in the sense that corpus data can be seen as an object of mediation (or pedagogic mediation) and the teacher a facilitator where deep learning can occur. In this view, the teacher helps the learner push the limits of their interlanguage to a potential level of development through a process of scaffolding where feedback is provided on a regular basis. In a similar way, students using a DDL approach use corpora to discover patterns of language by making hypotheses and refining these hypotheses through feedback until they reach a satisfying

level of comprehension. By doing this process numerous times, it is believed that the students can take ownership of the language and learn it without requiring any more support. The students at this stage have reached a deeper level of understanding thus allowing learner autonomy.

Teaching Grammar Using DDL

Different types of corpora exist which can be adapted to the needs of the classroom in terms of the grammatical feature to be taught. These include native-speaker or non-native speaker data, which can be publicly available or assembled by teachers who want to customize the corpus for their own classes to meet their students' needs. This is what Timmis (2015) calls a *pedagogic* corpus. In Belz and Vyatkina's study (2005) of German modal particles, for example, the researchers first asked the students to produce a piece of writing and then collected it to compile their own learner corpus. Based on this custom-made corpus, they decided to focus their study on the *da*-clause, which seemed to be problematic for this particular group of students. Over the course of the study, they updated the corpus with new pieces of writing from the students and asked them to look up and compare their use of the *da*-clause with a native-speaker corpus to notice the discrepancies. The results show that the students improved not only their metalinguistic awareness, but also the frequency with which they used the grammar feature, as a result of using the corpus.

Other types of corpora such as a graded readers' corpus (a collection of texts where low-frequency words are substituted by high-frequency words) can make corpus data more accessible to students by using simpler language (Keck and Kim, 2014). More familiar language can significantly reduce the cognitive burden, especially for low-level

learners, and encourage them to use corpora autonomously even if their proficiency level is lower. Such a proposal was made by Allan (2009), who created a graded readers corpus with Penguin readers ranging in the B1 and B2 level of the Common European Framework of Reference (CEFR) and found that it can be a good way for lower-level students to access corpus data. This proposal was further supported by Timmis (2015:132), who sees a "reasonable balance of accessibility and authenticity in the data it provides."

Furthermore, the language of the corpus can be attuned to the learning target. For example, the teacher can decide if the students are going to consult a corpus only in the target language or ask them to compare the target language with their first language using two corpora in the respective languages. In their study, Chujo and Oghigian (2012) used a parallel concordancer, a tool used by translators, which draws on bilingual corpora. It allows its users to display two versions of the same corpus in two different languages in which each concordance line is aligned to make it easier to see the correspondence from one language to the other, usually the L1 with the L2. Chujo and Oghigian made successful use of this tool to solve some of the recurrent issues that arose in previous studies where students had difficulty making sense of a monolingual corpus and making hypotheses on grammatical patterns.

Research Findings on DDL

Learning gains. Some research has been done on learning gains from DDL, particularly in terms of grammar. There is a scarcity of empirical data that largely stems from the lack of well-designed research using a pre/post-test/control group design as can be seen in (Cobb and Boulton's (2017) meta-analysis of 64 DDL studies where 20 qualify

for grammar. Thus the findings to date are tentative, but the work that has been done suggests that DDL may be effective at helping students address grammatical issues in an L2. According to these studies, DDL appeared to help with the correction of grammatical errors (e.g., Huang, 2014; Someya, 2000) and the increased use of linking adverbials (Cotos, 2014) and phrasal verbs (Boulton, 2008a; Smart, 2012) in writing.

Huang's (2014) study demonstrates improvement from using DDL in writing in terms of grammatical patterning of five target words. Forty third-year Chinese university students in an upper-intermediate level English for Business Purposes class wrote three argumentative essays in a pre/post/delayed post-test design. They compared the effect of consulting concordance lines (experimental group) instead of a dictionary (control group) in the prewriting task where the target words were given on the mistakes that students made in terms of lexico-grammatical patterns for the target words. Thus, "people **hold the** *objection* **of** tourism" in the pre-test compared to its use in the post-test "**the main** *objection* **to** the welfare" was considered as improvement because *the main objection to* is an accepted collocation in English while *to hold the objection of* is not. Overall positive effects were found following this methodology in L2 writing across essays. Specifically, the grammatical patterns were more varied and accurate (e.g., varied adjectives to modify nouns, used correct prepositions). However, although the results are positive, the topics of the essays were not consistent across the test times (the first essay was on the tourist industry and the second on the lottery), which may have positively or negatively influenced students' ability to use some known patterns in their writing.

Similar positive results were found in Someya's (2000) study of 40 Japanese business people between 20-40 years of age. Half of them were taking part in a series of

business writing seminars led by the researcher and were selected to be the experimental group; the other half (the control group) came from a Writing Marathon held at the local university and had no knowledge about the experiment. Over three months, both groups turned in seven letter-writing assignments which were corrected by two native speakers who gave them explicit error correction. The experimental group was asked to use the *Online Business Letter Corpus KWIC Concordancer* (BLC) developed by the researcher, to correct their errors while the control group was not. By comparing error counts on a ratio per total number of words for a given text, the researcher found that the experimental group made fewer grammar errors than the control group. It was not mentioned, however, what resources the control group had access to or exactly what the grammar errors were.

In Cotos (2014), 31 students in an advanced graduate academic writing course with different L1s were taught linking adverbials (LA) through DDL following a quasi-experimental design. A learner corpus (language data collected from the learners and then compiled in a corpus) and a native-speaker corpus were used in two different groups for three different tasks where students explored selected concordance lines for LA, extracted concordance lines to find more examples, and wrote a reflection on their findings. LA counts were then compared between the pre- and the post-tests and the findings suggest that students of both groups used LAs more frequently in their writing, especially the group using a learner corpus. However, the lack of a control group does not allow us to draw conclusions as to whether using corpus data yielded better results than using a conventional dictionary.

In Boulton (2008a), 113 first-year francophone students in engineering participated in a pre/post-test design on using phrasal verbs accurately in a short time. The pretest showed that their proficiency level was low especially for phrasal verbs which were the target features of this study (*look up* and *pick up*). Students were given a document with 25 concordance lines of the target phrasal verbs, then given a multiple-choice post-test 10 minutes later. For the analysis, three groups were made based on students' performance on the pretest (low, intermediate, advanced) and results show that all students, including the weakest ones, improved their accuracy. However, a weakness of the study is that the lack of a control group does not ensure that the results were not due to the effects of the pre-test only.

Finally, Smart (2012) also taught phrasal verbs in his study but took a different angle by comparing Presentation, Practice, Production (PPP), DDL and a deductive approach. Volunteers with various L1s from three intact ESL grammar classes in an intensive English program at Northern Arizona University participated. One group received traditional grammar instruction (PPP), another DDL and the last deductive corpus-informed instruction, where sample concordance lines are extracted and students investigate them on paper. The participants in the DDL group carried out activities that helped them correct errors, choose the correct verb + preposition combination from multiple choices, and choose the correct verb based on register (academic, written, spoken, etc.). Findings suggest that both groups that used corpus data (DDL and deductive corpus-informed instruction) outperformed the control group in the post-test but not in the delayed post-test. However, the findings are difficult to interpret because of the design of the pretest and post-test. First, both tests are very similar and might have

affected students' performance. Second, answers are given for the first item of all the questions which can be used to complete the rest of the test. This might have interfered in the results for students who selected their answer based on the example.

The most promising results come from studies conducted by Oghigian and Chujo (2010, 2012a, 2012b) and Chujo and Oghigian (2012) where a parallel concordancer was used. In Chujo and Oghigian (2012), three groups of Japanese engineering students taking a remedial English grammar class given by the researchers used this tool over two semesters. The activities consist of showing the same concordance lines in two languages, the L1 and the L2. The grammar and lexis features to be covered in the syllabus were all supported by exploratory activities using the parallel concordancer. Students were guided through the process of finding evidence of specific patterns. The pre/post-test scores show that DDL helped students in their learning of the past tense of irregular verbs, the possessive pronouns, nouns (Chujo *et al.*, 2013), and word classes and derivations (Oghigian & Chujo, 2010). Interestingly, across these studies, these researchers observed positive learning outcomes in the post-test scores which could possibly be linked to the type of corpus used but the lack of a control group makes it difficult to interpret. It is possible that the parallel concordancer (Japanese/English) they used, AntPConc[1], might explain why the impact on learning was significant in their various studies. It was customized specifically for this class by the researchers. To my knowledge, not much research has been done on classroom use of parallel concordancers other than Chujo and

[1] AntConc (Version 3.2. 2)[Computer Software], L Anthony, Tokyo, Japan: Waseda University, 2011. This specific type of parallel concordance can be downloaded and any prepared corpus file can be uploaded. Learners in Chujo and Oghigian (2010) needed a resource for Japanese learners of English and no other parallel concordancer of the sort existed at the time, thus the need to create their own.

Oghigian; however, their findings do point to possible learning benefits which may be related to the corpus students used in their DDL tasks.

Studies that looked at learning gains mainly focused on writing and were positive. These results must be nuanced due to a number of issues related to the designs. Those issues include the lack of a control group, the resources the students had access to and what the grammar errors were. Although pre/post-tests designs give a better insight into learning gains, some of them lacked consistency when it came to writing on a topic which varied across the tests and others provided too much information on the target items which students could use to answer the test.

Students' perspectives. Most of the literature has focussed on students' attitudes to having a DDL approach. Studies that have looked at DDL and grammar have, for the most part, reported positive findings in terms of students' impressions and attitudes. Through questionnaires (Boulton, 2008b; Conroy, 2010; Dilin, 2011, Lin, 2015; Oghigian & Chujo, 2010, Yoon & Hirvela, 2004), students' logs (Conroy, 2010), students' projects and reflection papers on corpus use (Dilin, 2011), and group or individual interviews (Abu Alshaar & Abuseileek, 2013; Conroy, 2010; Sah, 2015), the findings suggest that the approach is helpful and useful for learning grammar. The majority of the students across those studies also found the tool easy to use and liked the fact that they could use it from home.

In Conroy (2010), 165 undergraduate students in an Australian university writing course received a one to four-hour training to correct their errors using corpus data (tools included Google Assisted Learning, Lextutor, Virtual Language centre and online dictionaries). They had different activities focussing on lexical and syntactical patterns

(e.g., verb + preposition) to explore the different tools. The teachers then asked them to correct an essay using the new tools they had been trained to use. The errors were compiled and the results showed more improvement than the control group, which used online dictionaries only. Overall, the participants' attitudes were positive and they expressed their willingness to use the tools in the future.

In Dilin's (2011) case study, 41 students from two sections of an English university grammar course with a background in education and communication used the BNC-COCA to investigate a grammar feature they were interested in as part of a project. They chose their own grammar point to investigate and how to look up answers using the concordancer, with the instructors acting only as facilitators to allow for independent use of the tool. Findings suggest students enjoyed the activities and the projects were successful in terms of increased language awareness and autonomy.

An important aspect of DDL observed in the results of the above-mentioned studies is that it increases autonomy (Chujo *et al.*, 2013; Lewandowska, 2013; Miangah, 2011). In Chang and Sun's study (2009), 26 second-year high school students from Taiwan used a concordancer to edit their own essays, focusing on verb + preposition collocations. The researchers observed that students performed well when asked to proofread a set of sentences at the end of the treatment. Other studies in the field align with these results. Lin (2015), for example, using a pre/post questionnaire, found that students using concordancers showed increased self-efficacy in applying the grammar patterns in their writing. Yoon and Hirvela (2004) also observed an increase in students' confidence level when using the L2 following the treatment.

In cases where a parallel concordancer was used, students' attitudes were particularly positive for two main reasons. First, they reported that it helped them understand the concordance lines more easily (Chujo *et al.*, 2013; Chujo & Oghigian, 2012). Although the participants were in both studies were part of a remedial grammar class (i.e. lower proficiency), they could manage to understand the language data with the help of the parallel concordancer, which provided them with sufficient vocabulary support. Second, they could focus on grammar, the focus of the lesson, without being distracted by lexical challenges. Overall, students found their learning experience easier and more enjoyable with a parallel concordancer than with a monolingual concordancer.

Though the approach was well received, a common drawback highlighted by the students is that they found it difficult to draw conclusions and find patterns (Abu Alshaar & Abuseileek, 2013; Huang, 2014). Sometimes, this is because more concordance lines are needed to have enough exemplars of the grammar pattern being studied which can be time-consuming. In O'Sullivan and Chambers (2006), some students also felt a need to have more training over a longer period of time. The participants in this study were undergraduate students in an L2 French writing class designed to improve their writing skills. The students received training for corpus consultation skills over three weeks for three hours a week (1-hour lecture and 2-hour lab time). The main reason for wanting increased training was rather in terms of practice; it appeared that the technical aspect of using a concordancer took up more time compared to actual practice time, although this is not clearly explained in the study.

The issue of training is also a point addressed by Gaskell & Cobb (2004) in their study of 20 Chinese EFL learners in a low-intermediate writing course. They received a

four-week training period, beginning with two weeks of using in-class time to get accustomed to the corpus and the concordancer, followed by a training period where the students had to investigate five errors per week on their own. The researchers found out through observations that a longer time frame would have been useful to give students opportunities to get more accustomed to the tool and finding patterns. This suggests that a more independent user approach in the teaching would help students become more efficient.

Finally, DDL can be especially time-consuming among lower level students who might come across unfamiliar vocabulary, have difficulty interpreting the larger context of the concordance line because of the cut-off sentences, or be easily overwhelmed by the quantity of data (Huang, 2014). These inconveniences can be avoided in two ways. One is having a preselection of meaningful examples for the grammar feature to teach where the vocabulary is easier to understand and the number of examples are limited, such as using a Graded Readers corpus (Bennett, 2010) or by using VocabProfile, a feature on Lextutor for manually substituting low-frequency words with high-frequency (i.e., more familiar) words. A second way is the use of a parallel concordancer, which gives support in the students' L1 to accurately interpret the concordance line in the L2 no matter, which addresses the issue of limited vocabulary. The latter seems more convenient as it automatically displays the translations done by professional translators.

Teachers' perspectives. Very few studies have looked at teachers' perspectives despite their crucial role in implementing a DDL approach. Studies that have looked at DDL and grammar have, for the most part, reported positive findings in terms of teachers' impressions and attitudes. Through focus group interviews (Lin, 2015), a post-study

questionnaire, teaching logs, lesson plans, reflection journals and authors' discussions with the instructors (Liu & Jiang, 2009), the findings suggest that the approach is helpful and useful for learning grammar. Teachers in both studies had a positive experience teaching grammar and they found several advantages to the approach.

In Lin (2015), teachers were taught to use DDL for the first two weeks of an 18-week semester, then introduced to sample activities and how to design them. They also had three teaching practicums over the semester to help them in their classes. Varying ratios of DDL were used and the results suggest that a blend of both DDL and non-DDL activities work best for students to acquire a variety of grammar features, including passives, relative clauses and phrases showing purpose, contrast and results.

In Liu and Jiang (2009), the instructors were all Chinese and they taught different sections of the Essentials of English course. The teachers received training before the treatment about corpus use, but also about common problems in lexicogrammar and grammar teaching. They examined many corpus examples and had hands-on activities as students would have. Conversation time between the researchers and the instructors was substantial during the training to ensure their understanding of how to implement DDL in the classroom. Upon the completion of the treatment, teachers were excited about their experience and shared their will to use corpora in the future.

Students becoming active learners and noticing gaps, and teachers' concerns are some similarities found to both studies. Teachers reported that students were also willing to know more about grammar and were engaging in discussions where they had to reflect deeply on the grammar in question. However, they also felt that DDL might be more effective with intermediate to advanced learners, especially those who had a good

vocabulary, who could successfully interpret the concordance lines and thus make accurate hypotheses about grammatical items.

DDL helped students notice the gap in their interlanguage by developing their language awareness. Liu and Jiang (2009) observed, by triangulating across three different sources of data (teachers, students and the researchers), several positive effects stemming from noticing, such as a better command of lexicogrammatical rules and patterns and a greater appreciation of the importance of context in lexicogrammatical choices. Dilin (2011), in her partial replication of Liu and Jiang's study, obtained similar results and noted that the students showed an increased awareness of 1) the dynamic nature of language use and 2) the relevance of context and register.

The teachers also shared some concerns regarding the time demands of DDL. However, it is important to note that the duration of the DDL treatment played a role in these perceptions. In both Lin (2015) and Liu and Jiang (2009), the study lasted a full semester, which implied a long-term commitment from the teachers. The teachers also argued that DDL would work better for difficult grammar forms such as the passive, while a traditional Presentation, Practice and Production (PPP) approach would be sufficient for teaching easy items such as discourse markers. Their assumption is based on the time/effect ratio for the type of approach used. Furthermore, they believe that the choice of the grammar types or features should take into consideration the learners' proficiency level and specific needs, and that DDL should be used with the purpose of meeting these needs. Finally, a good deal of guidance and modelling was needed for the approach to work as expected, regardless of students' proficiency level.

Summary. The conclusion that can be drawn from these studies is that DDL offers new insights on the target language to students and teachers alike. For students, it appears to increase their language awareness in multiple ways, by being critical of the concordance lines, and through analyzing the patterns and seeing how words affect one another. The type of corpus used in these studies also has an effect on students' experience; specifically, a bilingual corpus with a parallel concordancer seems to have had positive results. As for the teachers, the participants in Lin (2015) realized, through preparing DDL activities for their students, that some of their linguistic assumptions were biased. These teachers also believe that DDL is a promising way to teach problematic grammar features, which aligns with other researchers in the field (e.g. Belz & Vyatkina, 2008; Boulton, 2008b; 2010; Yoon & Jo, 2014), specifically in terms of depth of knowledge as opposed to breadth (Cobb, 1999). Another point of interest is that training sessions were found crucial for both teachers and students so that they could benefit from the approach. When these criteria were met, a significant number of the students and teachers expressed interest in using corpus data outside the classroom after the experiment (Chujo *et al.*, 2013; Dilin, 2011; Gaskell & Cobb, 2004).

An interesting point to consider is whether the type of corpus in these studies was adapted, which might explain why the students found it difficult. There is evidence that using a parallel concordancer can help in this regard (Chujo & Oghigian, 2012). In Gaskell and Cobb (2004), it may also have been difficult for students to interpret the data and to find patterns. The study used Lextutor, which at that time did not feature a parallel concordancer. This might have been a factor in the observed need for longer training time. Given the positive learning outcomes of using a parallel concordancer in the study by

Chujo & Oghigian (i.e., students find it easier to understand the concordance lines, focus on grammar rather than vocabulary), and the scarcity of research on this kind of concordancing, the present study will investigate the feasibility of using parallel concordancers in the acquisition of L2 grammar.

Parallel Concordancer

Chujo and Oghigian conducted a series of studies (Chujo *et al.*, 2013; Chujo & Oghigian, 2012; Oghigian & Chujo 2010; 2012a; 2012b) where they found that students were struggling with some grammar features because of a L1/L2 meaning problem. By using the parallel concordancer, the learners could better understand the data in L2 English and see the corresponding concordance lines in their L1 Japanese, which in turn helped them focus on the grammatical feature rather than being distracted by vocabulary—the main concern found in previous DDL studies (e.g. Allan, 2009). These authors conclude that the L1 translations provided by a parallel concordancer assisted them positively in their interpretation and increased their confidence when they found patterns.

These findings resulting from a decade of research point to a new direction that has not been investigated previously in the DDL literature: incorporating the role of the L1 when learning a new language through the use of a parallel concordancer. Making use of this resource can have potential applications in making DDL more accessible and less daunting to the students, who may feel insecure with the quantity of data it offers. However, the studies by Chujo and Oghigian (see Mizumoto *et al.,* 2016 for a summary of their work in this regard) do not give much attention to parallel concordancing, which is crucial to other research interests. These include comparing the usefulness of a paper-

based and computer-based approach, or a combination of both, in teaching lexicogrammatical items. More importantly, the extent to which a parallel concordancer can teach grammar is still unknown. In fact, we do not know much about how we can make use of its full potential.

The methodology used across Chujo and Oghigian's studies also has its shortcomings. For instance, the authors argue that learning gains were measured whenever the students used the parallel concordancer, but no control group was used to check whether the gains were indeed the result of using the tool. Furthermore, grammar per se was not the primary focus of their studies. Instead, grammar is mixed with lexis (e.g. *wh-* questions, collocations with *visa* (a proper visa, a short-term visa). The tests scores do not tell us whether grammar would benefit from this type of approach, although the conclusions drawn tend to suggest so. The findings are not telling regarding the target population that would benefit more from using bilingual corpora. For example, would beginners make better use of this tool due to their lack of vocabulary? Would it be useful for intermediate or advanced students, who may need to notice the limits of partial similarities between their L1 and L2 (e.g., similarities and differences between French passé composé and English present perfect), or more subtle differences that may go unnoticed (e.g., a focus on the result that may be perceived in the present)? Last but not least, whether learners can become independent in their future use of corpora after being trained remains unknown.

The current literature on teaching grammar using a DDL, especially with a parallel concordancer, shows that much is yet to be investigated. One thing that Chujo and Oghigian's findings share with the general DDL literature is that it provides teachers

with an opportunity to approach grammar teaching in a novel and engaging way where students can become active, independent learners. They also tend to point at a thought-out use of DDL for difficult grammatical items (e.g. linking adverbials, phrasal verbs) that might resist other commonly used methods such as PPP, audiolingual, and the communicative approach. Although teaching grammar through DDL can be daunting at first for students, using a parallel concordancer might be a way to avoid reluctance and provide L1 translations that can help students overcome vocabulary challenges to focus on grammar. It can also help them interpret the concordance lines more accurately without the burden of lexis, and thus gain confidence when making hypotheses for specific grammatical patterns.

Problem Statement

Based on these findings, there is a need to further investigate how a parallel concordancer can be used for teaching grammar in the language classroom. There is much we do not know in terms of applicability, such as the form the activities would take, how time-consuming they are, the assistance needed to use this tool, the type of guidance and monitoring students need and finally, the extent to which a parallel concordancer can complement grammar lessons. To answer such questions, a feasibility study is a logical first step when considering the implementation of a potentially effective novel approach. Examples of feasibility studies from previous research include Dault and Collins (under review) and Horst, White and Bell (2010) where activities were designed and implemented following a suggested approach, prior to follow up studies designed to investigate actual learning gains of the materials

The proposed study explores the use of a parallel concordancer in ESL classes in Cégep in Quebec, which prepare students for university studies. The ESL classes are mandatory and teachers have access to a computer lab time on a weekly basis, which lends itself well to the implementation of DDL. Considering this population, the following research questions were devised:

1. How feasible is it for ESL students to use an English-French parallel concordancer to address grammar features in which the L1-L2 differences present learning problems?
    a) How successful is one in-class training session in preparing students to complete guided DDL tasks using the parallel concordancer on their own?
    b) How long does it take students to complete guided DDL tasks? Is this a reasonable amount of time considering the time constraints of the course?
    c) Can the students complete the DDL tasks accurately?
    d) What are students' perceived learning benefits and challenges of using a parallel concordancer to address L2 grammar challenges that stem from L1 influence?
2. How feasible is it for teachers to use an English-French parallel concordancer to address grammar features in which the L1-L2 differences present learning problems?
    a) How successful is one training session in preparing teachers to independently prepare and teach their DDL tasks using a parallel concordancer?
    b) How long does it take teachers to create a DDL task? Is this a reasonable

amount of time considering their usual planning time?

c) What kind of monitoring or guidance did teachers feel they needed to offer when the students did their independent task?

d) What are teachers' perceived benefits and challenges of using a parallel concordancer for teaching L2 grammar challenges that stem from L1 influence?

Chapter 3: Methodology

In this chapter, the teachers and students who participated along with the pedagogical materials that were prepared for the teachers will be presented. In addition, the four phases of instruction that guided the procedure and the data sources used to address the research questions will be described.

Participants

Two teachers took part in this study. There was a recruitment session at the language department of the Cegep where the rationale and implications of the study were explained briefly with an example of what a parallel concordancer is. Moreover, the investment on the part of the teachers was mentioned orally and stressed on the handout they received. The two teachers contacted me by email following the recruitment session where they showed a particular interest in trying DDL in their own classrooms. They reported having no experience using this approach prior to the study. Their motivation and lack of familiarity with DDL was verified during the training session they received. They had a good rapport together and both reported having 7 years of experience each teaching at that Cegep.

The students who participated were three French-speaking groups who had all completed at least one course at the English 102 level, which corresponds to an intermediate to upper-intermediate mastery of English in all four skills (speaking, listening, reading and writing). This criterion was used to select classes, following the findings from previous research that suggested concordancing activities could be challenging for lower level learners (e.g. Boulton, 2008a; Liu & Jiang, 2009). The students were all L1 French or highly proficient speakers of French learning English as

their second language. They were therefore able to use a French/English parallel concordancer. The students at this stage had had at least eight years of instruction in ESL. Six classes participated in the study, but the three retained for analyses were those that were all at similar level (according to the Cégep classification). Students who were not able to attend all three laboratory sessions of the treatment (described below) were excluded from the study, resulting in a total of 46 participants (Table 1).

Table 1

List of Participants

Teachers	**Group Number**	**Class Level**	**Teacher-reported Level**	**Students Present (All labs)**
A	01	B2- Upper-Intermediate	Average-Strong	13
B	02	B2- Upper-Intermediate	Strong	13
	03	B2- Upper-Intermediate	Average- Weak	20
Total	3 groups			46

All students must complete two English courses over two years during their programme to prepare them for entry to university. The first course is devoted to acquiring general English language skills, while the second is an English for Specific Purposes (ESP) course tailored to the students' field of practice (e.g., arts and humanities, science), especially in terms of the relevant vocabulary and language functions (e.g., writing a cover letter or a resume, making a phone call, talking about the workplace). All the

participants of this study were completing (Groups 2-3) or had already completed the ESP course (Group 1). In the case of Group 1, they were taking an additional elective course to introduce them to basic concepts of linguistics and to improve their language awareness. All these classes (ESP and elective) are given twice a week, one two-hour session of theory and a one-hour session spent at the computer lab where the teachers expose students to authentic language on the Internet. Sometimes the students also do research, play games, or focus on online grammar/vocabulary exercises.

Materials

Parallel Concordancer. The parallel concordancer that was used for this study is Tradooit (http://www.tradooit.com), a free online resource that uses multilingual corpora (French/English/Spanish).

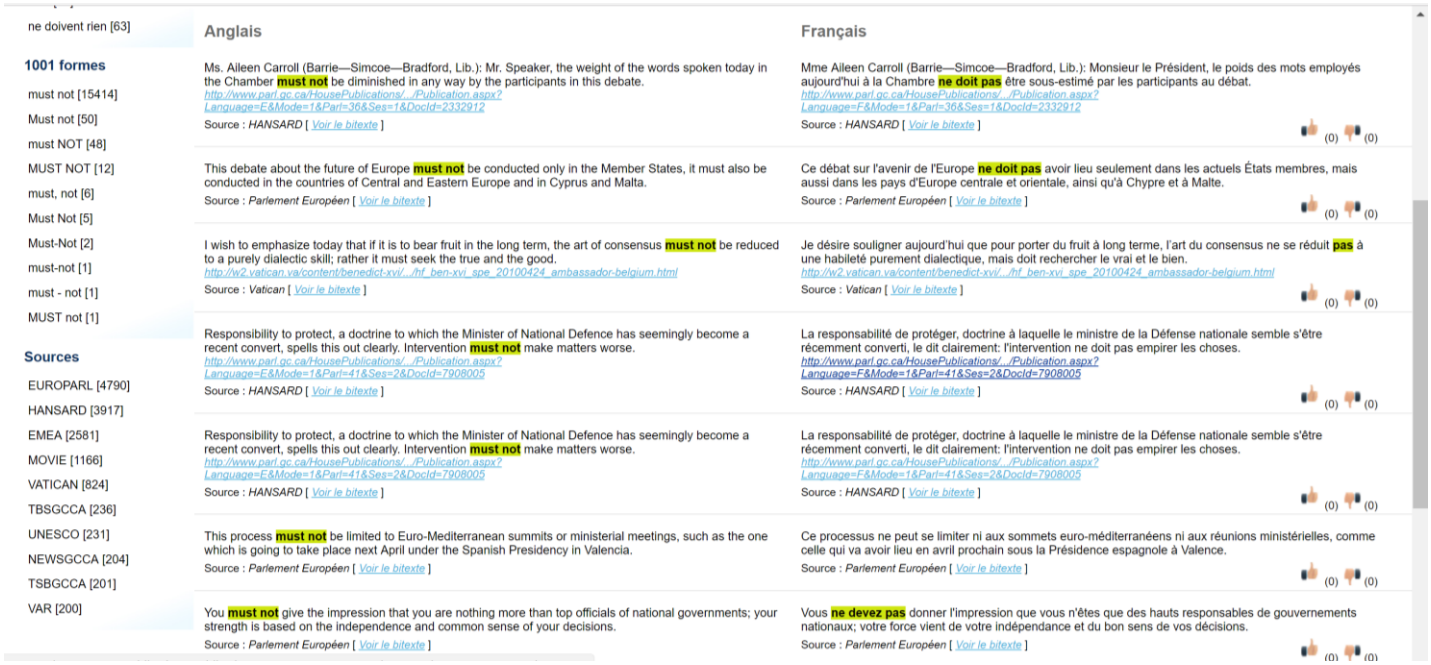


Figure 5. Occurrences of *Must not* in Tradooit

I pilot-tested the tool with a group of my own students at the school I teach at through investigating the use of prepositions. They received a discovery task similar to the modal auxiliaries task (explained below) where they had to discover the different functions of a set of prepositions and make comparisons between French and English (e.g. f*or* versus *to*). I found that the interface is user-friendly, which makes it potentially appealing for teachers to use. This particular concordancer was chosen over AntPConc from Chujo and Oghigian (2012) because it does not require the user to download and install a program, it is easy to access, and the loading time is quick. Moreover, multiple corpora are made available such as HANSARD, NEWSGCCA, UNESCO, STATCAN and EUROPARL which are reliable government controlled corpora ranging from parliament debates to news in three languages: French, English and Spanish. The data from these corpora are written by expert transcribers and professional translators, which minimizes the risk of translation errors. The results can also be sorted out by corpus and for any given translation of the search term. The display of the results also weighed in the decision; the bilingual corpora are well aligned and the highlighting makes the target items salient and attractive. The only downside to using these corpora is that the English might at times be challenging because of the use of technical terms, especially in the HANSARD corpus, but given the nature of a parallel concordancer (i.e. direct access to L1 translation for challenging words/phrases), it was felt that this would not pose a problem. Moreover, it is possible for the user to leave out a corpus that might not be relevant through a sorting function.

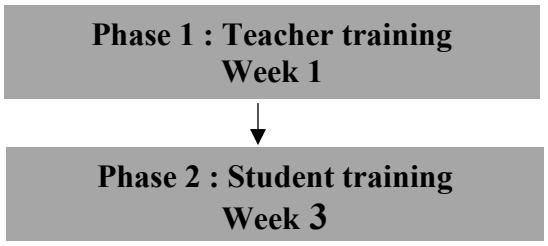
Teacher training guide. Teachers were provided with a short guide explaining how to use the parallel concordancer in teaching grammar. It includes:

- the rationale of the study (e.g. Provide teachers with a tool to engage students in learning grammar; help students become independent learners; teach reasons, not rules (Larsen-Freeman, 2015))
- examples of challenging grammar features for Francophones (e.g. The articles *a, an, the*; the modal auxiliaries system; verb tenses such as present perfect and simple past, present perfect and present perfect progressive)
- a sample lesson about the modal auxiliaries *have to* and *must not* in their positive and negative forms to teach to their students during Phase 2 of the Four Phases of Instruction (see Figure 6)
- a teacher log
- a teaching lesson template for Phase 3
- a checklist for use during the treatment.

This document was given to them during Phase 1 and the components will be explained in more detail below.

Procedure

The study unfolded in four phases over six weeks when teachers and students progressively received less guidance in either planning or doing the DDL tasks (see Figure 6).



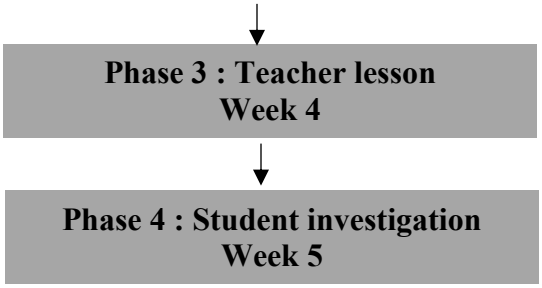


Figure 6. The Four Phases of Instruction

In Phase 1, teachers underwent a one-hour training session given by me in which they explored the concordancer and did a few tasks from the modal auxiliaries lesson that the students would use in Phase 2. They were also encouraged to ask questions throughout the whole treatment outside class time.

Phase 2 involved first teaching the modal auxiliaries following the teacher's guide, which teachers could adapt by adding or removing modules as they saw fit (Appendix B). The teachers then trained the students in using the DDL program to practice the grammar point. I was there throughout the lab time to help with monitoring.

The modal auxiliaries in this lab are taught following what is called a discovery task where students make their hypotheses in parts one and two, and test them in part three. In the first part, students are asked to use the concordance lines and list the different translations of *must, have to, must not, don't have to.* Then they compare them and see if there is any pattern (e.g. *have to* and *must* have the same translation in French, but *don't have to* and *must not* don't). The second part is more specific to *must.* The students are provided with two French contexts that show (prohibition and logical probability) and then they are asked to find their equivalent in English. They are also

asked to provide the pattern that helped them choose the English equivalents and their concordance lines (Figure 7).

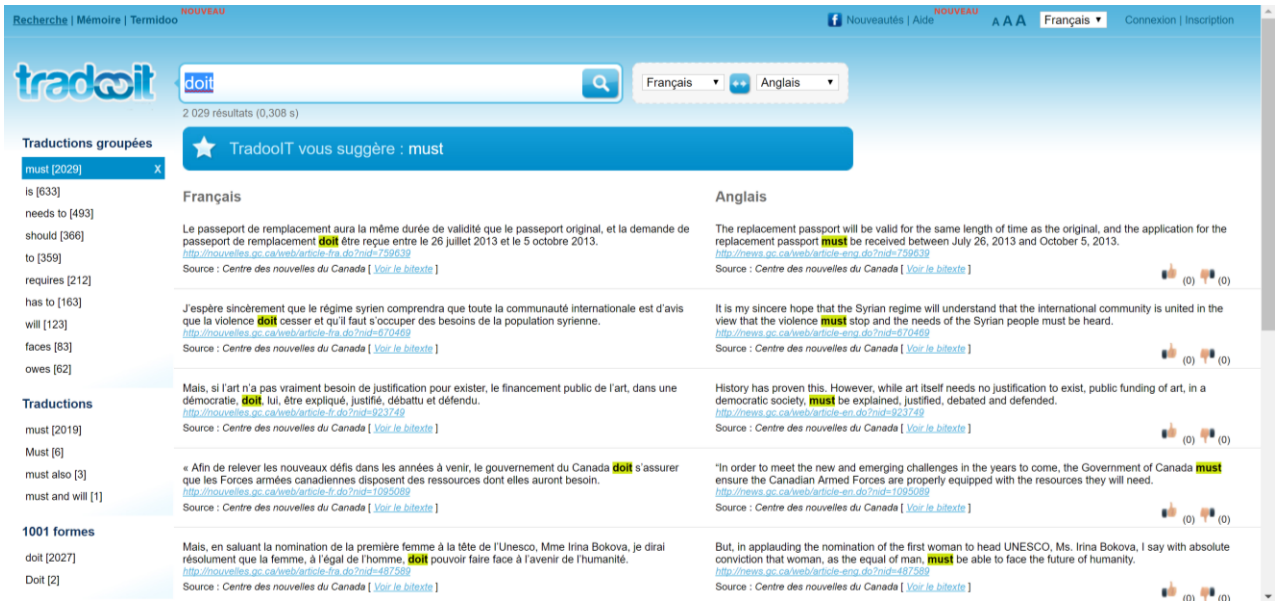


Figure 7. Occurrences of *Must* in Tradooit

There is also a more specific exercise on finding the different translations of *must not* in the different verb tenses (e.g. *must not* can be used in the present and the future, but *don't have to* is required in the past). The third part is meant to be more productive so that students can put into application what they learned. They create short dialogues using the target grammar and play *Find someone who* by using the modals correctly.

In Phase 3, teachers designed their own DDL task and chose five to ten grammar features they felt needed to be covered in the form of a proofreading task. A lesson template (Appendix C) was provided for the teachers to use in their planning along with two sample tasks from Chang and Sun (2009), which they used as a reference. Those tasks were meant to illustrate what a proofreading task can look like since the teachers

had trouble imagining the format. Again, I was there to assist the teacher in the monitoring of the class.

The proofreading task was selected by teachers because they wanted a practical application of the DDL approach to suit the needs of their classes. Students are required to write multiple essays and the teachers felt that even if the mistakes were pointed out, they would keep making them. The teachers hoped that the task would enhance the students' proofreading skills in the long term.

In order to select the features, the teachers used previous students' essays and made a list to include in the sentences they created for the task. The decision not to have all teachers choose the same grammar point was made because the teachers wanted their labs to be relevant for their students. It was also a good way to see what teachers felt needed further attention.

The grammar features were selected by the teacher for the tasks in Phases 3-4 on the basis that there was a meaning problem between L1 French and L2 English. For example, the use of prepositions is a known difficulty for francophone students because prepositions can be abstract and vary a lot between French and English (Swan & Smith, 2001). The authors include examples such as the misuse of *since* for duration (e.g. He has lived here *since five years) and verb + preposition differences (The bottle is made *in plastic). It is also true of verb tenses such as the present perfect and the present perfect progressive for Francophones. Because the present tense in French encompasses the simple present, the present progressive and the present perfect progressive, the boundaries between these three tense-aspect forms in English can be obscure for learners (Celce-Murcia & Larsen-Freeman, 2015). The teachers were encouraged to carefully

select features that present L1/L2 challenges, and design their proofreading and investigation tasks that address these challenges.

From Phase 2 onwards, the teachers were encouraged to use a variation of the four-stage approach used by Chujo and colleagues in their study (Chujo *et al.*, 2013: 73) which was adapted for this study to three stages. The initial homework stage was removed due to time constraints. The resulting approach is as follows:

- Stage 1: Hypothesis formation where the students, working with a partner, received a worksheet and had to analyse concordance lines to identify grammatical patterns
- Stage 2: Teacher feedback on the task in a class discussion.
- Stage 3: Teacher's elicitation of what they had done in the lab the previous week.

The authors developed this approach so that it aligns with the guided induction approach by Flowerdew (2009) and Smart (2014). In this approach, the teachers become facilitators so that the students can play an active role in their learning. In Stage 1, students can help each other in their hypothesis formation, and in Stage 2 and Stage 3, the teacher gives feedback to the students so they know if they are using the tool properly and if they understandood the grammar. Ideally, the type of feedback students receive can help them become independent users by pointing out the direction their search should take so they become successful in completing the tasks accurately. The objective is to give students the opportunity to find reasons for making clear grammar choices rather than applying a set of rules the teacher will give, as is the case in a PPP (Presentation, Practice, Production) approach.

In the last phase, students could choose several grammar features or *linguistic challenges* (term used by teacher A which was known by the students) they wanted to investigate from a preselected list of features covered by the teacher in previous classes. It was important not to include new grammar features as stressed by Cobb (1999), prioritizing depth over breadth, as it was found to be too challenging. In other words, teachers are encouraged to revisit a grammar feature (e.g. the present perfect) in more details by clarifying some aspects of its meaning (depth) rather than covering a new verb tense (e.g. future perfect) that was never taught before (breadth).The rationale for having students choose from a preselected list was to ensure comparability across students for the analyses. Moreover, the features needed to be relevant and challenging because of L1/L2 differences.

Students were asked to fill out a report of their findings. In this phase, students were completely autonomous in their investigation although both the teacher and I were present to answer any questions they had.

A pilot test of the design of Stage 1 tasks found that it could be difficult to follow a step-by-step approach to guide students' exploration of the grammar feature. For this reason, Chang and Sun's (2009) scaffolding prompts were used to help students carry out the task. These prompts were adapted for a parallel concordancer as can be seen in Table 2. In order to make the task coherent for the teacher when designing a Stage 1 task (hypothesis formation) and the students when conducting their research, the prompts were provided as a reference for the students to use, accessible online on the Portal they use for the course.

Table 2

Designing a Stage 1 Task (Adapted from Chang & Sun, 2009)[2]

Steps	Strategies
1. Keyword selection	a. Enter an appropriate keyword or string of keywords b. Try a shorter string of keywords c. Try different keywords
2. Concordance analysis	a. Read words surrounding the keywords in examples b. Pay attention to pattern frequency c. Skip unclear examples, or consult the L1 translation for help
3. Rule formulation	a. Look back at the question's keyword and its surrounding words b. Compare the keyword in the question with the examples. c. Compare the keyword in the question with its L1 equivalent to help you. d. Select the best usage pattern on the basis of surrounding words in questions
4. Outcome evaluation	a. Read examples to confirm whether or not a formulated language pattern exists. b. Read examples to confirm whether or not the formulated language pattern is used frequently c. Review the learned usage patterns and skills.

The interesting aspect of the design is that it can be adapted to any grammar feature the teacher wants to focus on. The steps remain similar, which enables the teacher to save time and students to learn the process that they will eventually need to use on their own at the end of the treatment. The teacher's job is to find interesting patterns that illustrate the grammar feature with a meaning problem students struggle with.

The first assignment students completed for Phase 2 is a discovery task on the modal auxiliaries *have to* and *must*, *don't have to* and *must not* (see Appendix D).

[2] Added by the teacher to remind students to use the translations to their advantage.

Teachers used two of the three parts proposed in the teacher's guide and students were encouraged to use the concordancer and the translations to come up with specific patterns.

The teachers decided to use a proofreading task for Phase 3, which is an adaptation of Chang and Sun's (2009) to ensure students are actually using the concordancer and not just guessing (see Appendix E). In this case, the proposed proofreading exercise is adaptable to any grammar feature, ideally one that can be extracted from students' own writing collected by the teacher at some point. The students must then investigate and find the mistake, but also provide a justification taken from the concordancer. They are also encouraged to use the translations to better understand the examples. For instance, one find that *marry with him* is the mistake and uses the concordancer to find out that the verb *marry* is not followed by any preposition when followed by a complement denoting a person (e.g. *a woman abroad could be forced against her will to marry a Canadian citizen* […]). Then, the student can write down his observation, provide the correction (*marry him*) and source the concordance line (HANSARD).

Finally, the investigation task for Phase 4 was independently developed by the teachers. It consisted of an investigation report where students could select a linguistic challenge (e.g. use correct verb tenses) and select the corresponding mistakes from their own writing or from a source text to work on this specific challenge (see Appendix F). By asking the students to source the concordance lines and their translation, the teacher was taking advantage of the benefits of the tool and also made sure that students were aware of it. Furthermore, students had to provide a justification for choosing their answers to show evidence of their understanding. Here is an example from the worksheet:

Example:

- Linguistic challenge: Avoid French syntactic structures.
- Example of a mistake/problem in English: Do you know what is the capital of Cuba?
- Correct/Improved English Form: Do you know what the capital of Cuba is?
- Explanation of change: Whereas French can repeat the interrogative form in separate clauses in the same sentence, English uses the interrogative structure only once per sentence to express a question.
- Example from corpus data:

English	French
I certainly do know what it is like for young people. http://www.parl.gc.ca/HousePublications/.../Publication.aspx?Language=E&Mode=1&Parl=38&Ses=1&DocId=1402311)	Je sais fort bien quelle est la situation à laquelle les jeunes sont confrontés. http://www.parl.gc.ca/HousePublications/.../Publication.aspx?Language=F&Mode=1&Parl=38&Ses=1&DocId=1402311

Data Sources

Data were obtained from three sources (the teachers, the students, and myself) and six methods (student questionnaires, student assignments, teacher logs, teaching lesson templates, semi-structured interviews, and observation notes). This allowed for triangulation of data, with a view to increasing reliability. Table 3 provides a description of how these different methods contributed to the analyses.

Table 3
Research Questions and Instruments

Research Questions	**Data**
Feasibility for students	
1. Training session	Questionnaire Semi-structured interviews Observation notes
2. Time needed	Worksheets Teaching log

	Observation notes
3. Independent completion of the tasks	Worksheets Questionnaire Semi-structured interviews Observation notes
4. Perceptions	Questionnaire Semi-structured interviews
Feasibility for teachers	
5. Training session	Semi-structured interviews Observation notes
6. Lesson planning	Lesson template Teacher log
7. Monitoring	Teacher log Observation notes
8. Perceptions	Teacher log Semi-structured interview

Student questionnaires. The students received a questionnaire two weeks following their third lab in Phase 4, either on paper (Group 1) or electronically (Groups 2-3). Both versions are the same in content, but the choice of format made it more convenient for each teacher. The paper version was filled in during class time and collected at the end, while the electronic version was accessible on the web Portal, completed outside class time and uploaded once completed. The questionnaire contained two parts. The first consisted of Likert-scale questions (1 = strongly disagree to 6 = strongly agree), which aimed to capture the extent to which students enjoyed the tasks and why, found it useful for increasing their understanding of grammar, believed the translations helped them understand the target grammar or proofread, wanted to use corpora in the future on their own, had prior experience using a parallel concordancer

such as Linguee, and had any recommendations for the future. The second part included open-ended questions designed to probe reasons for the perceived benefits and challenges, why some tasks were more interesting or not and what the students remembered overall in terms of grammar from the treatment. The questionnaire is provided in Appendix G.

Student assignments. The different tasks the student carried out during the treatment were collected and analyzed to see whether the students were able to make reasonable hypotheses based on their search using the parallel concordancer. The students were asked on each assignment to indicate the start time and the end time for doing the task. This way, it was possible to see whether they could complete the tasks in a reasonable amount of time considering the constraints of the course.

Teacher log. The teachers involved in the study were asked to write a weekly reflection during the process of training and teaching using the DDL approach (see Appendix H). They had to answer a set of predetermined questions to prompt their reflections such as the challenges they faced, the benefits they observed, the necessary guidance the students needed as well as their personal comments. They also had to keep track of the time devoted to planning their lesson and giving students feedback.

Teaching lesson template. During Phase 3, the teachers had to create their own lesson based on several grammar features as part of the course curriculum (see Appendix C). To do so, they were asked to fill out a teaching lesson template, which could then be analyzed to see whether the teachers understand how to design a DDL lesson. The lesson plan could then be compared against my observation notes of the actual teaching to assess the discrepancies between what was planned and what actually happened during the

teaching. It also allowed me to evaluate whether the training session was sufficient for teachers to become autonomous in their teaching.

Semi-structured interviews. To complement the student questionnaires and the teacher log, semi-structured interviews were conducted with all teachers and three groups of three to four students from each group who volunteered to participate. All interviews lasted between 20-30 minutes. The interviews were recorded and transcribed. The objective was for the interviewees to have a chance to express their comments in more detail. Some guiding questions extracted from the questionnaire were used as a starting point to enquire about the participants' overall impressions, challenges they faced, adequacy of the training, and future use of the tool. More specific questions for teachers included their planning of the tasks and the time required, and whether they found their lessons successful. Students were asked how they went about doing the tasks.

I could also ask for further explanations whenever a vague statement (e.g. it was easy, it was difficult) or interesting piece of information (e.g. I have already used another parallel concordancer before, there are better tools, etc.) came up.

The teacher interviews were structured to obtain clarification on the teacher log and the observation notes, and also to hear their perspectives on if and how they would use a parallel concordancer in the future (Appendix I).

Observation notes. I attended all the treatment sessions to observe the teachers and the students doing the tasks. Notes were taken on the teacher's control of and apparent ease with the task, the kind of guidance the students needed, and the receptiveness of the students to the lesson. I did not interfere during the teacher-fronted part of the lesson. During the on-task time, however, I went around the classroom to

monitor the students' performance and provide the necessary guidance to students who needed help.

The data collected from those instruments will be presented in the following section along with the analyses.

Chapter 4: Results

The following chapter explains how each data source was analyzed and presents the results by research question for students first, and then teachers.

Data Analyses

Teacher log. The logs were used as a way to complement information that was not mentioned in the interviews and to document how teachers' thinking in terms of planning, problems that arose, and success of their lessons, throughout the process. A list of recurrent themes was made to make it easier to find comparable opinions between the two teachers. The comments were varied and added depth to the teachers' perceptions of the training, the time involvement, and the monitoring (see Table 4 below).

Lesson template. The teachers did not use the lesson template and therefore, it could not be used in the analysis. When asked for the reason behind this decision, the teachers explained that did not have enough time to plan during the semester, preferring to do so before it starts. They also reported having taught the same class over several years and did not feel the need to use an elaborate lesson plan. For this reason, the sixth research question about the teachers' planning time was addressed through the observation notes and the interviews, which were detailed enough to provide the actual time they spent planning and the expected time necessary to plan a successful lesson although it is understood that the reflective part of the planning stage on the part of the teacher could not be analyzed (see Table 4 below).

Student worksheets. Each of the three labs the students took part in was analyzed in terms of time needed (minutes), score of completion and score of accuracy. The time needed was compiled for each student based on the start time and end time filled in on

each worksheet. Completion was coded as follows. A student was given one point per answer for each section of the questions for the modal auxiliaries task, the proofreading task and the investigation task. If one section of the answer (explanation, correction of the mistake, concordance line, or source) was missing, the student obtained half a point. If the question was left blank, no points were given. For accuracy to be analyzed, the question had to be at least partially completed. In such a case, the scoring depended on an answer key prepared by me. Any discrepancies judged irrelevant or not contributing to all the elements of the answer resulted in half the score. It was thus possible for a student to have .5 for completion but 1 for accuracy since the answer could be accurate, but not sourced. If completion was 0, then accuracy was not counted and left blank, as a 0 would imply the student provided an incorrect answer, which is untrue. The results do not take into account whether students worked in pairs or not, which is beyond the scope of this study. Each student was given his or her own score.

Semi-structured interviews. Both the teachers' and the students' interviews were transcribed and coded following the list of themes used for the teacher logs and the topics addressed in the student questionnaires. The themes were determined by the list of guided questions and a first read-through of all students' and teachers' interviews. The themes included: positive impression, negative impression, challenge, intended future use, prior experience with DDL, grammar features and successfulness. Any excerpt judged representative of a recurrent theme was saved and used for the purpose of the analyses.

Student questionnaires. All electronic and paper questionnaires were compiled in two different tables, one for the Likert-scale questions and one for the open-ended questions. Both tables were compiled separately for each group. This decision was made

because the students did not receive exactly the same treatment from both teachers, especially for the proofreading task and the investigation task, which involved different questions, grammar features, linguistic challenges and feedback.

Observation notes. The observation notes were first typed and then analyzed in terms of the procedure of the lesson, on-task time and questions asked by students. Whenever observation data were found to be similar to the interviews, those were saved separately and included in the appropriate results section. All the data from the procedure of the lessons were summarized in the corresponding sections of the results about time for both students and teachers given that the lesson template was not used.

Following the changes that arose during the study, Table 4 provides an updated version of the data sources and how they will be used to answer the research questions, reported on in the next section.

Table 4
Updated data sources

Research Questions	**Data**
Feasibility for students	
1. Training session	Questionnaire Semi-structured interviews Observation notes
2. Time needed	Worksheets Teaching log Observation notes
3. Independent completion of the tasks	Worksheets Questionnaire Semi-structured interviews Observation notes
4. Perceptions	Questionnaire Semi-structured interviews
Feasibility for teachers	

5. Training session	Semi-structured interviews Observation notes Teacher log
6. Lesson planning	Teacher log Observation notes
7. Monitoring	Teacher log Observation notes
8. Perceptions	Teacher log Semi-structured interview Observation notes

Results

Students

The first research question was about whether it is feasible for students to use the parallel concordancer to address grammar features that present learning problems due to L1/L2 differences.

Training. The first sub-question was to know how successful one in-class training session was in preparing students to complete guided DDL tasks using the parallel concordancer on their own. For 150 minutes spent at the lab over three weeks, 35-40 minutes were spent using the tool for each lab (total: 105 minutes). The additional time (10-15 minutes) was used by the teachers to update students on their other assignments, taking attendance and such.

The first lab began with a 15-minute theoretical introduction to corpora, the difference between a concordancer and a parallel concordancer, the purpose of using this tool in the language classroom (e.g. proofreading), and its resemblance to Google. Then, teacher A wrote a French sentence on the board (e.g. Je dois faire faire mes devoirs ce soir) and asked students to translate it into English so they would up with the modal *have*

to (e.g. I have to do my homework tonight). Teacher B modelled a search on the concordancer instead by using the projector. Both teachers provided feedback for five minutes at the end of the class and at the beginning of the following lab class. The feedback focussed on eliciting students' answers and asking them how they found their answers. The following week, the teacher summarized what was covered in the previous lab in the feedback session.

Teacher A had only one group of students. Teacher B had six; of these two were selected for this study. As Teacher B taught the same class several times, he decided to explain in more detail how students could change the source on the concordancer so that they obtain better results. He suggested using the *Movies* corpus, as it contains more common language than in the HANSARD. The students' were thus more interested in the data that reflected oral English from movies they know and the vocabulary was more accessible and relevant.

The teachers' guide did not specify how to create a task for their labs, but rather provided examples of tasks with the possibility for teachers to adapt them to suit their teaching style. They did adapt the worksheet provided in the teachers' guide for Phase 1, which was designed to explore the tool through the teaching of the modal auxiliaries in their positive and negative forms (have to, must) (Appendix C). Both teachers' adjustments involved formatting and making the worksheet shorter by removing the production section.

Although multiple students said it was the most difficult lab, they also admitted that it was a necessary step to get accustomed to the tool:

Excerpt 1

R: Ok. Makes sense. How about challenges? Did you find anything challenging like difficulties when doing the labs?
S3: Well for myself it was the first lab personally. It was the first time that we got to confront like how it works and to do activities with it, but for the second lab and the third lab, it was fine like we got to like really understand how it worked. But yeah, the challenge was really the first time to know like what kind of words do I type in or do I type the whole sentence, because if I type the whole sentence, maybe there won't be like many answers. There'll be like one or two but if you type like for example only the verb, then you'll get thousands and even more so.
S2: Yeah for the first time, we hadn't had enough time and it was because you were looking for like complete sentence or part of the sentence, but it was not really working so. But the second and the third, we understood how it works.

As S2's excerpt illustrates, some students would have liked to have more time because they felt they were receiving a lot of information about the functions without necessarily needing them for the exercise. One example is the *See the bitext* function, which enables the user to display the full context from which the concordance line was extracted:

S5: I remember that when our teacher, because our teacher explained everything about the Tradooit like we weren't using everything, clicking on cache. Like you could click on something
R: Like the bitext?
S5: Yeah the bitext and like we weren't really using so I was just- Like the first one I was- The first lab period I was very mixed up and me and my friend didn't even finish even though it was very easy, cuz like I had too much information on this site. That's how I felt.
S1: Yeah it would be easier if we could approach the website at our own leisure instead of like crammed with information and how to go about it. Like when you discover a new website and you just explore on your own.

Another interesting point is that students struggled to find the right keywords. Both teachers and I noted that students need help finding the right keyword to enter into the concordance, and that this should be included in the training.

Excerpt 2

Teacher B: Like different suggestions of like, okay try to find this or you know it could all be, you know, the first activity could be a mix of that. Give them the French, English but also give suggestions of that they should look for like terms, the actual keywords that they should enter into the system to try find things. I think it's that we have trouble

> finding the keywords that they need to be able to correct… So, helping them to create these ways of thinking is I think the key to having them be able to actually use the tool

Teacher B brings up an interesting point by stressing the need to "create ways of thinking" which could be implemented in the training session. The training was not explicit about which keyword to prioritize when using the concordancer. Rather, teachers promoted a trial-and-error approach and told students to try using keywords in both their L1 and the target language, in this case French and English.

Time needed. The second sub-question concerned the time it took for students to complete guided DDL tasks and whether this was reasonable considering the time constraints of the course. For the sake of brevity, the following labels will be used to refer to the three labs corresponding to Phase 2-3-4 of the treatment:

- Lab 1: Discovery task (Modal Auxiliaries)
- Lab 2: Proofreading task
- Lab 3: Investigation task

As previously mentioned, some students said they needed more time for Lab 1 but it was easier for them from Lab 2 onwards. The figures do not align with this in terms of number of questions completed per lab, as Table 5 shows.

Table 5

Lab Completion and Time

Lab	Average Completion in Percentages			Average Time in Minutes		
	Group 1 (Teacher A)	Group 2 (Teacher B)	Group 3 (Teacher B)	Group 1 (Teacher A)	Group 2 (Teacher B)	Group 3 (Teacher B)
1	83	80	84	34	32	35
2	74	78	82	35	38	36
3	98	87	95	37	38	36

Teacher A and B's groups used similar amounts of time to complete almost the same number of questions (5.67 vs 6.33), meaning that 74% or more of the group had done those questions at the end of the lab time. The total time on task using the parallel concordancer is also comparable between the groups (105.97 vs 107.33). Labs 1 and 2 for both teachers were not fully completed by students while lab 3 was. The total number of questions student had to complete was also reduced by both teachers.

Independent completion of tasks. The third sub-question was about whether students could complete the DDL tasks accurately. Each lab was analyzed based on the percentage of students who completed the lab, the two or three most successful (more than 70% accuracy) and least successful answered questions (equal to or less than 70% accuracy) across the groups and what grammar aspect those questions were about.

Table 6

Average Completion and Accuracy in Percentages of Lab 1

	Group 1		Group 2		Group 3	
Questions	**Compl.**	**Acc.**	**Compl.**	**Acc.**	**Compl.**	**Acc.**
Q1 French translations	100	100	100	100	100	100
Q2A Similarity *have to*/*must*	91	77	100	71	100	78
Q2B Meaning *have to*/*must*	86	90	100	75	100	88
Q3A Similarity *don't have to/must not*	100	64	100	21	100	48
Q3B Meaning *don't have to/must not*	100	86	100	50	100	80
Q4A Difference *have to/don't have to*	91	75	100	64	100	70
Q4B Difference *must/must not*	91	80	100	64	100	80
Q5 Meaning *devoir*	91	90	100	89	95	95
Q6 English equivalents	59	50	100	78	73	72
Q7 Pattern to find *must*	*	*	93	54	73	67
Q8 *Must not* in the Present	64	63	57	100	33	39
Q9 *Must not* in the Past	59	50	36	50	38	18
Q10 *Must not* in the Future	59	57	7	100	28	22

*Teacher A did not include this question

Assuming the students did the questions in order, more than half the students of Group 1 managed to finish the whole lab. Less than 28% in groups 2-3 completed the last question, either because they ran out of time or because the task was too difficult, as pointed out earlier by some students and Teacher B's log. More than two thirds of Groups 2-3 had

time to complete up to Q7 though. The most successful questions were transcribing the translations (Q1), finding the pattern using French examples (Q5), and explaining the function of the positive form of *have to* and *must* (Q2B). The least successful questions were finding the past form of *must* (Q9), finding the future form of *must* (Q10) and comparing the French translations of *don't have to* and *must not* (Q3A).

Questions requiring translations of *must* were difficult (Q8-10), with all accuracy scores below 70% except for group 2 (but fewer students completed them). The concordance lines were often missing, and there was confusion over the past translation of *must* with *should* and *could*, while the answer should have been *have to*. Overall, formulating the grammar patterns for the modal auxiliaries was challenging for most students who only received half a point, especially for Q2B, Q3B and Q4B. In Q7, where students had to explicitly tell what pattern helped them identify what concordance lines were accurate, the answers varied greatly. Some noted that *must* is often followed by the verb *be*, or by an action verb. Others went further by saying that it means a supposition when it is followed by a noun group, a supposition if followed by a verb in its continuous form (it must be raining) or an obligation if followed by a verb in its past participle form (he must be punished).

Since the second lab was created by the teacher, the content varied significantly. Teacher A initially intended to create a proofreading task but it turned out to involve investigating grammar rules that were provided. To be a DDL task, Teacher A should have focussed on grammar only and developed a proofreading task where sentences would have been provided and students would have needed to find and correct the mistakes. Furthermore, it was impossible to verify whether the students had used the

concordancer as there was no place for sourcing the concordance lines in the teacher's worksheet. For these reasons, only Teacher B's Groups 2-3 were analyzed.

Table 7

Lab 2 Teacher B (Groups 2-3) Completion and Accuracy in Percentages

	Group 2		**Group 3**	
Questions	**Compl.**	**Acc.**	**Compl.**	**Acc.**
Q1 Present perfect	100	54	93	48
Q2 Present perfect progressive	92	50	88	63
Q3 Preposition + gerund	100	100	93	75
Q4 Second conditional	100	88	90	83
Q5 *was born*	100	100	88	100
Q6 *Marry* + zero preposition	92	92	85	100
Q7 *Deal* + zero preposition	92	96	78	94
Q8 *Attitude* + preposition	54	63	63	65
Q9 *Regardless* + preposition	38	60	50	75
Q10 *Call* + zero preposition	54	100	58	93

Assuming students did the questions in order, most of them did 7 out of 10 questions, and more than half the students did Q10. The errors that were corrected the most successfully were *was born* (Q5), *deal with* (verb + prep.) (Q7), *call + no prep.* (Q10) and *marry + no prep.* (Q6) with more than 93% accuracy rate for all. Interestingly, 3 out of 4 questions are verb + preposition rules. The least successful questions were the Present Perfect (Q1),

Present Perfect Progressive (Q2), *attitude towards.* (N+ prep.) (Q8) with less than 70% accuracy rate but a minimum of 60%.

Q1, which included a verb tense error, was the least successful for various reasons. The sentence to correct was:

> I like travelling (A) a lot. I've already went (B) to France, Spain, Germany and Japan. I'm planning to (C) go to Australia in June. My boyfriend will probably come with me (D), but it isn't official yet.

There was initial confusion with spotting the error. For instance, some students thought that A should have been the infinitive instead of the gerund (i.e. I like to travel) or that the verb in D should be conjugated in the third person singular (i.e. will probably comes). Those who knew that B was the error still struggled to provide the proper correction (*I've already gone*), a confusion between the present perfect use of the verb *be* and *go*.

For the third lab, the investigation task used the same report, but a slightly different approach for each teacher. Teacher A's group 1 chose their first challenge for Q1 but the rest were imposed and based on a list of linguistic challenges the teacher collected from the students at the beginning of the semester. However, students could choose the specific aspect within that challenge. For example, one linguistic challenge was to *choose the right preposition* and students could select anything related to that based on their essays such as *arrive at/in* or *go at/in*. Only questions that were about grammar were kept in the analyses. Therefore, Q2 and Q6 were removed because the verb-preposition combinations are collocations which is vocabulary. The personal challenges were also sorted following that criterion. The linguistic challenge *avoid run-on sentences* was also removed because in the students' and teachers' interviews, this

specific challenge was considered to be too vague and did not qualify as grammar that could be addressed via the concordancer.

Table 8

Lab 3 Teacher A (Group 1) Completion and Accuracy in Percentages

Questions	**Completion**	**Accuracy**
Q1 Verb tense	100	67
Q3 Preposition	100	88
Q4 French syntax	88	88
Q5 Present Perfect vs Simple Past	100	65

Of Teacher A's group, 88% or more did all four grammar challenges. The most successful challenges were choosing the right preposition (Q3) and avoiding French syntactic structures (Q4). Q4, although vague, was clarified by the teacher who said it referred to language interference errors. The students selected mainly the possessive *'s* and word order as when a question word is used within a clause (e.g. I don't know *what is he doing*). A few students selected *adj. + noun* word order, *propose* + preposition, and the zero article when referring to a general concept (e.g. I like *pasta* vs. *the pasta*). The least successful challenges were the personal challenge (Q1) and using the Present Perfect and Simple Past correctly (Q5).

The personal challenges included the possessive *'s*, *live at/in*, adverb of frequency placement and *think to/of*. Interestingly, choosing the right verb tense in Q5 was also the least accurate in Teacher B's second lab. Finally, it was common for students to correct something they thought was a error, but was in fact correct. For example, *He lives* at *his*

parents' house was corrected to *He lives* in *his parents' house.* Important to note is the fact that students in this group had more leeway in choosing their errors, which came from their own essays which was not the case for Teacher B.

Teacher B's groups 2-3 had a text for students to consult to find the errors that correspond to the linguistic challenge they wished to investigate (Appendix J). Twelve errors were made available to students, which included:

- Verb tense (or rather verb forms): Simple Past vs Present Perfect Progressive (watched*), gerund/bare infinitive (the importance of been*), past participle (stay motivate*), personal pronouns (about it*)
- Prepositions: verb + prep. (interested by*), prep. + *group* (in/within a group)
- French syntax: adverb of frequency placement (often*), discourse marker (in that way* (so, thus), conditional (perhaps you would*)
- English syntax: Verb modifier (agree completely*)

Students could choose from a list of challenges and select them as many times as they wanted, thus allowing more freedom. However, all students used the same source text where a range of errors were underlined. The challenges were: 1) Use the appropriate verb tense, 2) Choose the right preposition, 3) Improve vocabulary by finding synonyms for weak words, 4) Avoid French syntactic structures, and 5) Avoid sentence structure problems. For the purpose of this study, 3) was removed from the results as it does not meet the grammar criterion.

Table 9

Lab 3 Teacher B (Groups 2-3) Completion by Challenge in Percentages

Challenge	**Nb of times selected per student**	**Completion**	**Accuracy**
Verb tense	92	97	79
Preposition	16	88	88
French syntax	34	96	78
English syntax	24	98	81
Total	166		

More than 82% of the students from groups 2-3 could do all 6 challenges within their lab time. The most common challenge selected was: 1) Use the appropriate verb tense: Simple Past versus Present Perfect Progressive. The least common challenge selected was prepositions, but again, there were only two options. Interestingly, verb tense errors were selected four times more than prepositions although the reference text had only twice as many verb tense errors.

Like Teacher A's group in Lab 3, as well as the proofreading task in Lab 2, there was confusion over similar errors such as the gerund vs. infinitive and verb tense choice (in this case it was more general: past progressive, present perfect progressive, etc.). Errors with adverb placement worked well with perfect accuracy of 1 when counted separately.

Interestingly, other areas of difficulty arose, such as poor use of metalanguage. Students often confused what a preposition, an adverb or an adjective is, the difference

between the progressive *-ing* form and the base form of a verb (e.g. it made me thinking vs. it made me think) and the difference between the gerund and the continuous form. The explanations for correcting their errors were also incomplete, vague or unclear. Finally, there seemed to be some issues regarding the differences between challenges 4 and 5 (avoid French syntactic structures vs. avoid sentence structure problems), which shows through the selection of the challenge and its associated error.

Perceptions. The fourth sub-question looked at what the students' perceived learning benefits and challenges of using the parallel concordancer to be. Students' perceptions were measured through semi-structured interviews and a post-study questionnaire. The first part of the questionnaire was divided between Teacher A (see Table 10) and Teacher B (see Table 11) since the tasks from Labs 2 and 3 varied significantly. The Likert scale used for this part ranged from 1 (totally disagree) to 6 (completely agree) and was analyzed as negative (Ratings 1-2), slightly negative (Ratings 2-3), neutral (Ratings 3-4), slightly positive (Ratings 4-5) and positive (Ratings 5-6). The second part included open-ended questions and included all three groups from both teachers (see Table 10).

Table 10

Teacher A's Likert-scale Questionnaire (Group 1)

	Ratings						
Questions	**1**	**2**	**3**	**4**	**5**	**6**	**Total**
1 Usefulness	0	0	1	6	2	0	9
2 Helps grammar discovery	0	3	2	3	1	0	9

3 Translation is useful	0	0	2	3	4	0	9
4 Helps Proofreading	0	0	3	3	3	0	9
5 Difficult	3	3	1	1	1	0	9
6 Future use without translations	0	4	1	2	1	1	9
7 Future use with translations	0	3	1	2	2	1	9
8 Use Linguee	5	0	1	0	1	2	9
Total							9

Table 11
Teacher B's Likert-scale Questionnaire (Groups 2-3)

	Ratings						
Questions	**1**	**2**	**3**	**4**	**5**	**6**	**Total**
1 Usefulness	0	0	5	9	2	0	16
2 Helps grammar discovery	0	1	5	4	6	0	16
3 Translation is useful	0	3	4	6	3	0	16
4 Helps Proofreading	0	4	4	4	3	1	16
5 Difficult	3	4	6	3	0	0	16
6 Future use without translations	0	7	4	4	1	0	16
7 Future use with translations	1	4	7	2	1	0	16
8 Use Linguee	10	1	1	0	2	2	16
Total							16

Usefulness for grammar discovery and proofreading appears to be neutral to slightly positive. The responses are mainly neutral regarding usefulness for group 1 (8) and groups 2-3 (14) or helpfulness in grammar discovery for group 1(5) and groups 2-3 (9), but there were more positive than negative responses for usefulness for Teacher B (10 vs. 6). There were also mixed results for usefulness for proofreading across all groups (6 vs. 8). However, in both the open-ended questions and the interviews, students mentioned that proofreading is especially useful, with several identifying Lab 2 (the proofreading task) as being their favorite lab.

The translations, which are the main feature of the parallel concordancer, received slightly positive results for its usefulness in group 1(7) and groups 2-3 (9). Interestingly, the Likert scale responses show that for future use of translations, Teacher B had slightly negative responses, while Teacher A's group 1 responded more positively. The interviews in this regard were positive only as these students state, commenting on their experience using Tradooit:

Excerpt 3

S1: I think it was easier than some other pages like Google, you have to search some words but with Tradooit, you write your sentence. It helps because there is a side in English and the traduction [Fr: *translation*] in French
R: So, the translation, did it help you?
Ss: Yeah.
R: It helped? How?
S1: Maybe when you're not sure about if your grammar is right. Me when I write things I just see it in my head and if it works I write it. But when I see it too, it helps.
S2: I think when we use Google Traduction or Reverso, the sense of the sentence is not always right. But then with Tradooit, we have examples we can find. And we have the same sentence in French and so we can see the sense of the sentence is the same as you want to say. I think it's easier that way.

During the interviews, some students referred to Linguee, another parallel concordancer. If most students had prior knowledge of using this concordancer, then it could have

compromised the results in terms of training they needed, their independent completion of the tasks and the monitoring they needed. To ensure most students did not have any prior knowledge of another parallel concordancer, the question was included in all the interviews and the questionnaire. The Likert scale responses show that more than half of group 1 and more than 75% for groups 2-3 had never used Linguee or any parallel concordancer, which clarified whether this could have influenced the data, especially the independent completion of the tasks. The interviews confirmed those results and shed light on how Linguee was discovered:

Excerpt 4

> S3: Yeah but because I already know it was, I didn't know a lot about this tool, but I was already using it I think it was Linguee.
> R: Linguee? Yes.
> S3: Yes because sometimes I go on Google and when I think of a sentence and I just think, ah that way, and then I type it and it comes with that website, with Linguee. So, I use it a lot. And when we tried with Tradooit and then I thought oh that's what I was already using. But that's the kind of thing I found really useful for when I write essays or things like that I will use it again.

The perceived difficulty of the tasks was low for all groups. When considering the data from the open-ended questions and the interviews, the perceptions varied according to the lab. The discovery task from Lab 1 was the most challenging because the students were learning the tool, the instructions were unclear, and it was hard to find examples (see Excerpt 1).

The proofreading task from Lab 2 was mentioned several times as being their favorite, along with the investigation task from Lab 3. The latter was more challenging, but the students seemed to appreciate having *more freedom*. The third lab also seems to have worked better in terms of learning for them:

Excerpt 5

> S2: I think the second one was easier but then the third was more challenging because you had to find the error, so I would say the third one because the second one just reading the sentence, I knew already like the kind of error. Because it was error that we saw in the past, before. So it was easier because I knew them. But then the third one, sometimes it was errors that we knew but then again sometimes it was things that we haven't seen. It was a bit more challenging for me.
> S1: Yeah me I preferred the third one because you have to make your own framework and then you have to find the right one. It's not just like that's the error and memorize it. You look for it and then find it in your own way and then you're like oh I understand now.

The investigation of learning outcomes using the parallel concordancer is beyond the scope of this study, but Q9 and Q11 from the open-ended part of the questionnaire give an insight into what they remember about general aspects such as L1/L2 differences and how to translate French ideas into English, as well as more specific ones such as verb + preposition collocations and the use of the keyword *since* for the Present Perfect.

Finally, although the Likert scale suggests mixed results as to whether students would use the parallel concordancer for future tasks, the open-ended questions and the interviews provide more insight in terms of reasons students might use it in the future—mainly for writing essays or translating French ideas or meanings into English.

Excerpt 6

> S3: Well, I think it's really positive, but I would say the restriction of it is that you need a certain base of English to use it. For example, if you don't understand something you need to know what you don't understand in the sentence. And for example the errors that we had to find, you had to know what was the error and how would you change it, you know. So, for person or people with a base in English I think it can really help. But if you're like starting English, then sometimes you can have less competencies to use it. Cause you don't necessarily know what to search.
> S2: For example, must like maybe for really beginner they don't know that it can have different meaning from different context, so they wouldn't understand why understand certain things.

Overall, students had mixed to positive feelings about using the concordancer in the future unless they knew specifically why they would use it and if their level of English was strong enough.

Table 12

Groups 1-2-3 Open-ended questions items

Questions	Answers	Did Not Answer
9 Grammar point researched	Prepositions (3) Syntax (2) Run-on sentences (1) Modals (2) Simple Past versus Present Perfect (1) Verb translations (2) Proofreading (1) Phrasal verbs (1)	10
10 What is helpful	Many examples (8) Proofreading (3) French translations (2) Word nuances (1) L1/L2 differences(3) Noticing L1 interference (1)	9
11 What learned	Synonyms and nuances (2) L1/L2 differences (1) Grammar rules (2) Stop run-on sentences (2) Many translations possible (1) Since = Present Perfect (1) Complex grammar for the future (1) How to express French ideas in English (1) Verb and preposition collocations (1)	13
12 Favorite lab	Lab 1 Discovery Modals(5) Lab 2 Proofreading(6) Lab 3 Linguistic challenges(5)	9
13 Difficult lab	Lab 1 Discovery Modals(7) Lab 2 Proofreading(3)	10

	Lab 3 Linguistic challenges(5)	
14 Reason for difficulty	Unclear instructions (5) Hard to find examples (1) Complexity of the grammar point (1) Too easy for the level (1) Learning the tool (1) Finding the errors (2) Long to do (1)	11
15 Independent use/Confidence	Yes(12) No(3) Need review (1)	9
16 Reason to use in the future	Write essays (6) Translate French ideas into English (3) Vocabulary(3) Homework(1) Will not use (4) Other useful websites (4)	8

Teachers

The second research question was about whether it is feasible for teachers to use the parallel concordancer to address grammar features that present learning problems due to L1/L2 differences.

Training. The first sub-question was about whether the one training session for teachers was successful in preparing them to teach their DDL tasks independently. The data for teachers' perceptions of training come mainly from the teacher logs, which revealed positive perceptions about the experience. They found that the document was interesting and gave them the basics. An interesting comment highlighted the need to have the teachers play with the tool independently before receiving the training in order to have a better idea of what to expect. They felt that there was a large amount of information to assimilate, and this preparation would have helped them visualize what an

actual lab would look like with students. During the treatment, they talked about not knowing what their second and third lab could look like, which was also echoed in the interview:

Excerpt 7

> Teacher B: Because it was hard to see actually what we could do with it. And it's by using it that you kind of discover and by actually seeing the students use it and seeing, ok, what are they finding on the tool and how are they answering the questions, and that you can't really know in advance how it's gonna go and everything. So it's hard. But like the training session, like after that I was trying to create my activities and I was like ok, I'm not too sure how this is gonna be but…

Teacher A also noted in his log that he found it hard to find examples that clearly illustrated the rule being taught, and that this might be an issue with his students. The anticipated problem he stressed was that idiomatic translations that represent exceptions to the rule could lead to confusion.

Time needed. The second sub-question looked at the time needed for the teacher to create a DDL task and whether this was reasonable considering their usual planning time. Both teachers agreed that they should have spent more time on planning to develop activities that are better integrated to their course curriculum. For instance, they said in the interview that for an hour of lab time, they would spend two hours preparing a new activity, or only thirty minutes if they are adapting existing material. In the case of DDL, they considered three hours for one hour of lab time to be ideal so that they have enough time to ask the proper questions and to do it themselves to anticipate problems that might arise.

They also said it would be a good investment of time because it would become part of their reusable material for future years. They admitted, however, that a teacher must dedicate the necessary time beforehand to make it work while being aware that a

DDL activity would need to undergo several adjustments. Otherwise, class time would be affected, which is what happened in Teacher A's class. In his teacher log, Teacher A noted that he spent too much time having students correct several issues on the second lab worksheet at the beginning of the class. Considering that the lab period lasts 50 minutes and that more than 10 minutes were spent on correcting questions, the hands-on task was reduced by at least 20%.

Monitoring. The third sub-question was about the monitoring the teachers felt they needed to offer when students were doing the tasks. In their logs, teachers noted that students did not need much guidance in using the tool. Instead, most of the students' questions concerned minor clarifications about the instructions and knowing which keyword to enter. The teachers also agreed during the interview that the students got used to the tool quickly.

The observation notes align with the teachers' perceptions in this regard, suggesting that not much monitoring other than clarifying instructions was needed even for Lab 1. For Labs 2 and 3, the students were independent in their work and sometimes asked questions about what keyword to enter or if the pattern they had found made sense. An important point observed during all labs from both teachers is that the feedback sessions were very brief or nonexistent. Only at the beginning of Lab 2 did I prompt the teachers to do a debriefing so students would know if they were on the right track and to share tips for using the concordancer. Students did not receive any corrected versions of their labs during the treatment, as this was left to the decision of the teachers.

Perceptions. The last sub-question aimed at knowing what the teachers' perceived benefits and challenges were when using the parallel concordancer. In the

interview and their log, the teachers agree that students were curious and seemed to enjoy the activities. They said the students learned quickly how to use the tool and that they improved their research skills. For instance, Teacher B points out in his log that his students became critically aware of the results they found on the concordancer, in particular whether the translations were right. Also, choosing the right keywords could help them in their projects:

Excerpt 8

> Teacher B: But, yeah teaching them how to find the right keywords would help them after that use it. And would actually also help them with their research skills, you know like in general. Like when they get a topic for a speaking exam or a writing exam and they can't find an article related to it, it's because they have trouble figuring out what the keywords are to find what they're looking for.

The teachers were not necessarily satisfied with their lessons, especially in Lab 1. However, their logs suggest that lab 3 seemed to have worked well for reinforcing students' knowledge. As they stress in the interview, they would need to improve their activities for future use and experiment with other types of activities, such as a translation task from French into English.

Excerpt 9

> R: You'd do translation?
> C: Yeah a little bit like the first version of my Lab 3. There was a little bit of that meaning that most of the time they have an idea in their heads, it's in French and they want to translate it and they translate it wrong and using the concordancer would actually help them translate what they have in their heads correctly.

Both teachers assert in the interview that the parallel concordancer has potential as long as it is integrated with the course. They also believe it would require a semester to get accustomed to it, and see what it actually looks like and how students respond to it. Otherwise, they thought it would be difficult to figure it out on their own. Furthermore,

teachers must be aware that the tool can be *clunky* at times or the examples *not always helpful*.

In conclusion, both students and teachers had mixed to positive responses to the DDL approach they used during the treatment. A number of grammar features were selected ranging from verb tenses, modal auxiliaries and prepositions to syntactic structures across the three labs. The majority of students were able to complete the three labs, namely the discovery task, the proofreading task and the investigation task. Teachers also found a way to adjust the labs they created along the way and provide guidance when needed. Finally, the time component did not prevent students from completing most of their labs or the teachers from preparing their lessons.

Chapter 5 Discussion

In this chapter, the findings are interpreted in light of the research questions, which asked whether it is feasible for students and teachers to use a parallel concordancer. Each sub-question is discussed separately for students (training, time commitment, independent completion of tasks and perceptions) and teachers (training, time commitment, monitoring, and perceptions) and interpreted in reference to previous research.

Students

Training. The first lab was dedicated to the introduction of the parallel concordancer through a discovery task about modal auxiliaries. The students considered this lab the most difficult because the instructions were sometimes unclear and they did not know which keyword to use to find the desired results. The worksheets also showed that students were not trained to find patterns and elaborate grammar rules of their own using the necessary metalanguage. Students' metalanguistic awareness can be key to a successful DDL lesson as it was observed in Liu and Jiang (2009).They also did not receive feedback on their work at the end of each lab. However, the students quickly learned how to use the parallel concordancer despite the lack of feedback.

This seems to suggest that the amount of training on using the tool was sufficient, but could have been better distributed and focussed. The assumption was that students would need to get accustomed to the tool by being able to follow specific steps, but the needs were more specific. For training to better prepare students to make full use of the tool to learn grammar, it should train them in selecting the right keywords, as the teachers suggested, and in using the proper metalanguage to hone their analytical skills when pattern hunting. Despite Gaskell and Cobb (2004) assertion that a *longer* training period

is recommended, the results suggest that *better* training, which allows students to find what they are looking for more efficiently and verbalize what they find, would be a more viable solution. It could possibly contribute to better completion and accuracy of the tasks, as well as foster learning opportunities and boost teachers' perceptions of lesson success.

Time needed. Although different approaches were used by both teachers, students could complete almost the same number of questions in a given time (around 6-7 questions for 35 minutes on-task). The workload of the first two labs was slightly heavy for the time allotted, but the teachers readjusted the questions to the above-mentioned average for the third lab. Although students said in the interviews that the investigation task was challenging, they enjoyed it and most of them managed to complete it; in fact, it had the best completion rate among the three labs. It was only in Lab 1, the discovery task, where some students would have liked to have more time.

It is reasonable to think that both the teachers and the students better understood how to use the tool by the third lab, which could explain the better completion rates. The issue of time, which is outlined in various studies (e.g. Boulton, 2010), did not seem to be problematic here given that the participants could adapt to the time constraint. Nevertheless, the teachers highlighted an important issue: that the activities they prepared were not necessarily tailored to their course curriculum and it would have required more on-task time, which they did not have. They did not necessarily want to dedicate more than a full lab period using the concordancer especially when they noticed how little guidance the students needed.

In Boulton (2008b), most tasks in the treatment took the form of assignments the students had to do at home. The time spent in class was on providing feedback, which

allowed teachers to focus on important aspects only. I opted not to do this in the study, considering the workload the teachers already had and the lack of control over the variable of time it implied. However, it could be an interesting solution to reconcile class time, the relevance of the subject matter and learning opportunities for the students. This way, the facilitative role of the teacher could be emphasized and students may benefit more from feedback than online monitoring.

Independent completion of tasks. The completion and accuracy rates of each of the three labs were calculated along with the most and least successful questions for each. In the discovery task (Lab 1), the data suggest that transcribing the translations, finding a pattern using the French examples, and explaining the function of the positive form of the modal auxiliaries *have to* and *must* were the most successful. These questions were the most accurate because 1) the instructions were straightforward, 2) students possibly felt more comfortable in their first language and have a better feel of the language and its intrinsic patterns, 3) the modal auxiliaries' rule in its positive form is something seen in lower levels. Considering that all the groups were of intermediate or upper-intermediate proficiency, it is also possible that they already knew the answers.

The least successful questions are equally interesting. Finding the translation of *must* in the past is more difficult because its equivalent is *have to*, which needs more analysis of the results since the concordancer displays various translations in the past. The user must be able to distinguish the different meanings and select only the ones that apply to the function of *must* in the past, which can be confusing to students. As for the question about formulating the differences between *have to* and *must* in their negative forms, most students only had a partial answer. The discovery task aimed at having

students notice this specific aspect, and it seems that students needed more guidance in this regard. The instructions were meant to be suggestive or rather implicit, but the lack of training for pattern hunting might have affected the accuracy rate for this question. However, when looking at the following Question 4, which summarizes the differences between *have* to and *must,* one finds that there is an increase in accuracy, which may suggest that the instructions for Question 3 (Comparing the French translations of *don't have* to and *must* not) might have been unclear. However, it is impossible to say whether the result of this increase is because the students learned it from the task itself or if they had prior knowledge of this grammar point, which is usually taught at lower levels. Since the objective of the task was to introduce students to the tool, the purpose was fulfilled without compromising the learning outcome of the tool instead of the grammar feature itself.

In the proofreading task of Lab 2, Teacher B focussed more on verb + preposition collocations (e.g., *deal with, call* and *marry*), which were the most successful ones. Given the lexicogrammatical nature of those errors, it is not surprising that they were the most accurate. As pointed out by Timmis (2015), the concordancer makes it easier and more instinctive to search for lexis and thus lexicogrammar without the need for extra guidance. The least successful questions, however, show an interesting pattern. They were mostly about the present perfect and present perfect progressive. As mentioned in several interviews, students stressed their willingness to use the concordancer to focus on verb tenses that they considered an area for improvement. Despite using the concordancer, students still struggle to obtain the correct form. This could be attributed to different factors, such as the lack of representative and meaningful examples in the concordancer

or the misuse of the *bitext* function, which allows its user to display the whole text in which the concordance line was extracted. It could also be the result of a lack of pattern hunting skills, as stressed by the teachers during the interview. Students tend to only focus on the mistake and not the words around it at the sentence level, not to mention at the paragraph level.

Proper training where the *bitext* function and the role of context is explained explicitly could have possibly helped students find clues for choosing the right verb tense. Only one student mentioned in the questionnaire having learned that the present perfect collocated with the keyword *since*. Teaching grammar with the concordancer seems to require a different approach than with lexis. Other functions must be used and pattern hunting seems more complex, requiring more versatility through alternating between the sentence and paragraph levels to have a better idea of what comes into play when making a decision about verb tenses.

In the investigation task (Lab 3), students in Group 1 fared better in choosing the right preposition and avoiding French syntactic structures. In Groups 2-3, choosing the right preposition was also the most accurate, but not the most common. Students from these groups selected the verb tense linguistic challenge more often, but their accuracy in this task was lower. Similarly, in Group 1, the distinction between the Simple Past and the Present Perfect was the least accurate.

Some of these results can be explained in conjunction with Lab 2 where the lexicogrammatical nature of prepositions seems to make it easier to find using the concordancer. Students possibly had many meaningful examples and the keyword is relatively easy to select (i.e., either the verb or the noun with or without its preposition).

These preposition errors include *by example/for example, side to side/side by side, arrive at/in* and *think about/of.* Students could also have been influenced by frequency, which means that they found more examples of *arrive in* without knowing that *arrive at* is grammatically correct in certain contexts. However, the worksheet was not designed to detect this type of reasoning.

The fact that verb tense choice is again the least accurate comes as no surprise, as was the case in the previous lab and repeatedly stressed by students and teachers during the interviews. During the scoring process, students seemed to struggle in distinguishing the notion of specificity (e.g. yesterday) and non-specificity (lately). Teaching techniques in the training session should address how to identify key factors to take into consideration when selecting a verb tense, especially in the absence of temporal adverbs. The context of the concordance lines was not always clear and a better use of the *bitext* function could have addressed this problem.

This lab was meant to leave the students completely autonomous. They managed to complete the activity with an acceptable accuracy rate (78-88%), with Group 1 showing slightly less accuracy (65-88%). The main problem was still formulating a grammar pattern or rule. The cause might partly come from the instructions given by the teachers. For instance, there were two overlapping linguistic challenges, namely *avoid French syntactic structures* and *avoid sentence structure problems in English*. In the case of adverb of frequency placement (e.g., He often goes to the cinema), the problem is a result of language interference, but it is also a sentence structure problem in English. Students might have felt unsure about choosing some of their challenges, which could also explain why they found Lab 3 harder than Lab 2 despite both being proofreading

tasks. The linguistic challenges should have been more specific and provided with examples. For instance, instead of *avoid French syntactic structure*, a challenge focussing on *adverb of frequency placement* would have avoided confusion.

When looking at the original text chosen by Teacher B for the investigation task (see Appendix I), there are 5 verb tenses, 2 prepositions, 3 French syntax and 1 English syntax errors. These figures can also explain the high number of verb tenses chosen. There also seems to be a need for more variety, which would naturally derive from more specific categories (e.g., word order, verb agreement). Using metalanguage in those categories, such as noun + preposition and verb + preposition, could also raise students' awareness of patterns in terms of word functions.

The selection of mistakes by Teacher B is interesting because it shows what he felt needed attention. Being a native French speaker and having taught for many years probably guided his selection, which aligns with students' views that verb tenses and prepositions are difficult. It is arguable whether the text should have offered the same number of errors for each linguistic challenge so as to give maximum freedom to students. This issue was not raised at any point during the study however.

Perceptions. According to the questionnaire, students had mixed, to slightly positive, opinions about the usefulness of the parallel concordancer and the tasks. The interviews were more positive overall, especially for using the tool for proofreading purposes. Students appeared to appreciate the translations; they rarely mentioned struggling with vocabulary, which was the main challenge identified in previous studies (e.g., Huang, 2014). This finding aligns with Chujo and Oghigian (2012), who highlighted translations as a way to have students focus on grammar instead of lexis.

Overall, the students found the tool easy to use and the tasks manageable, though challenging at times. This was especially true of the discovery task. This could be explained by the novelty of the tool and DDL approach, or the instructions that needed clarification. Students mostly enjoyed the proofreading task and the investigation task, which were more adapted to their level. The learning outcomes were not measured, but students showed through their reflections in the interviews and in the open-ended section of the questionnaire that their language awareness increased. This is consistent with both Liu and Jiang (2009) and Dilin (2011) who found students were more critical about word choice and were willing to investigate their nuances. In terms of future intentions, several students were willing to add the concordancer to their reference tools as highlighted by the DDL literature but stressed the importance of having a clear idea in mind and a good level of English before using it.

Summary. The training was successful in helping students use the tool to complete most of the tasks within the time constraints imposed. The results also suggest that students are able to complete the tasks independently, but not necessarily accurately. Further training and guidance with choosing the right keywords and wording out grammar patterns would be necessary for them to achieve higher accuracy rates and possibly learning outcome. Finally, their perceptions align with those observed in the literature, but are more nuanced in terms of the improvements DDL tasks should undergo to better fulfill their purpose and, how and why the students would use the parallel concordancer.

Teachers

Training. The teachers were positive about the 90-minute training they received, but would have liked to familiarize themselves with the tool beforehand. They liked the teacher's guide, which they found informative. One of the teachers also mentioned he had trouble finding relevant examples with the tool and that some translations were questionable at times. Finally, both teachers did not know what to expect from their students when using a DDL approach and could not visualize what their second and third lab would look like.

The initial response received when presenting the study and during the training was positive. However, the approach was new and they did not know what to expect. Teacher B's comment about having teachers prepare before the training is a valid one because the training could be overwhelming (e.g. too much information, unfamiliarity with the tool). To increase the chances of success, the approach must first be tested by the teachers, which is a crucial step not to be neglected. If teachers had been more prepared, their tasks could have possibly been better prepared and organized. For this reason, it seems desirable to spread the initial training in smaller bits and have teachers do and prepare a task or two using the tool. They should also receive feedback on those tasks before moving on to Phase 2 with the first lab. Teachers must comply with different obligations during the semester, and providing them with feedback for each lab as they taught them did not work well. When I gave feedback, the lack of time on the part of the teachers often prevented them from applying the changes suggested. In such cases, the activity, although shared with me, was already prepared and ready to use with no opportunity for adjustments. In retrospect, it would have been preferable to have them

receive the feedback on their labs before and it would have helped them better visualize what their class would look like. In a situation where a teacher would teach the same lab to several groups, as was the case for Teacher B, the lab could be further improved and the overall perception of success for a given lab would benefit from it. As stressed in the interviews, the teachers did not have a sense that all their labs worked the way they wanted.

The training should also prepare the teachers to teach students how to select keywords when using the concordancer, and efficient ways to go pattern hunting for a grammar feature. Another important area which was not emphasized in the training is how to approach some grammar features and determine their scope, and how to categorize them within linguistic challenges. This concept was proposed by Teacher B in this study and was found to work well for an independent investigation task. Unfortunately, there is little in the literature about how to train teachers to effectively use a DDL approach, and Lin (2015), who gave a voice to teachers in her DDL study, does not cover the issue of training.

Time needed. Using a DDL approach requires more time for planning—approximately three hours for one teaching hour according to the teachers—but teachers compared it to any new activity that must be created for the first time. A similar comment is found in Lin (2015). In this study, teachers did not put in as much time as they wanted, but they managed to prepare tasks that were challenging and forced students to think critically about language and how patterns can emerge. The teachers admitted that there was room for improvement, but they found the task was not insurmountable despite the time constraints. However, teachers who are willing to include a parallel concordancer in

their classroom must be ready to commit the necessary time in their lesson planning and exploration of the tool.

During the interview, a teacher shared that he would not use the parallel concordancer as a major part of the curriculum but would carefully select a few grammar features and dedicate one lab to it, with students using the tool independently outside of class for essay writing. This comment is interesting because it supports the students' feeling of how they would use the parallel concordancer in the future. Teacher A admitted not spending much time on lesson planning and was more focussed on introducing and letting students work on their own. The DDL approach may have to be adapted to the teacher's beliefs and the time commitment he/she is ready to give.

Monitoring. Teachers were prepared to provide guidance for using the tool, but students quickly got accustomed to the concordancer, requiring help mostly with choosing the right keywords and clarifying instructions. The absence of questions during the labs does not necessarily imply that the students did not need any guidance. It is possible that the monitoring was not provided at the right time in the process. As the results suggest, feedback on the labs was not integrated to the labs the teachers taught. They did not prepare detailed lesson plans where feedback sessions would be planned and how they would address them. The labs were also not corrected and handed back to the students for them to consult. It is possible that spending more time in class to provide meaningful feedback would have given rise to pertinent questions, which in turn would have benefitted the learning experience of the whole group. Teachers could have used such an opportunity to strengthen students' confidence in formulating grammar rules and provide tips on drawing conclusions from the errors they had to correct, for example in

Lab 2. This way, students would have been even better prepared to independently do the investigation task, and the accuracy rates would have possibly been higher. Similarly, students' perceptions could have been different; for instance, they might have been more willing to use the tool in the future. They could also have had a better idea of how they can efficiently use the tool other than with essay writing. Maybe the students did not have the chance to see how much they could draw from the concordance lines and how this can be applied to grammar, especially to aspects that can be problematic due to L1/L2 differences. The parallel concordancer lends itself particularly well to L1 specific challenges.

Perceptions. Both teachers agreed that their students were receptive to the approach by showing interest and actively participating, a finding commonly found in the DDL literature (e.g. Chujo *et al.*, 2013; Chujo & Oghigian, 2012; Lin, 2015; Liu & Jiang, 2009). The teachers in the present study also noticed that students were quick to use the tool. Overall, teachers felt their lessons could have been improved at the planning stage to prepare more accurate labs that align with the course curriculum and that the translations offered potential for students to notice important errors they make.

The teachers were positive throughout the treatment and they were eager to find ways to exploit the parallel concordancer. During the many conversations with we had, they shared interesting ideas to improve the tasks they developed. One of them is using a translation exercise in which students have to translate a French meaning into English. They believe the translation feature would allow students to nuance their thoughts and bring their productive English skills to another level. For instance, they could use the gerund or not to add details to what they mean (e.g. I like travelling vs. I like to travel

when I can). They think this translation exercise should come from a list of common interference errors, which would help raise students' awareness of such errors and help them avoid these recurrent mistakes. The teachers also proposed adding more support in the L1 in the instructions. For example, in the proofreading task, L1 support could have minimized the problem of interpreting the context when there are only a couple of sentences provided. Comparing with their L1 would help ensure that they understand the meaning intended.

Summary. Despite all the constraints teachers had to deal with during the study, they managed to create interesting labs that their students appreciated, using what they learned in the training and their own creativity. They were engaged and willing to give a sense of practicality to the tool, a purpose that could benefit their students in the long term by adding a string to their bow because their language and critical awareness seem to increase along with their research skills. This means that it not only benefits them for learning English, but for other classes that require similar skills. It is essential to work more closely with teachers for a DDL approach to be effective, as it allows them to tailor its use to their students' and their own time constraints and availability.

Chapter 6: Implications and Conclusion

The main research questions this study aims to answer is how feasible it is for students and teachers to use a parallel concordancer to address grammar features in which the L1/L2 differences present a learning problem. The students and teachers in this study succeeded in implementing the approach to a certain extent. The students' task completion and accuracy was high and students' responses to the idea of using the tool in the future were mostly positive. However, the teachers' planning and self-assessment of the successfulness of their lessons was not as satisfactory.

The students enjoyed being active in their learning by investigating several grammar points that were challenging for them. They were able to do the tasks independently in a reasonable amount of time, but were not always accurate. To be successful in a similar context, a training session that explicitly covers how to choose keywords and formulate grammar rules and that offers practice in identifying patterns should be introduced to students before using a discovery task. These skills must be developed to ensure that the students make the best of the limited hands-on practice they may get in class, and allow them to do the DDL activities at home as assignments, freeing time in class to provide the necessary feedback about their findings. This would make a parallel concordancer more accessible to students to complement what they study in their course. It can help break the routine of covering a set of grammar rules and having them practice fill-in-the-blanks exercises as homework. Indeed, some students shared that they liked the kind of challenge it represented and that they felt they were learning something.

The teachers were also positive about using the parallel concordancer throughout the treatment, although it was a lot to assimilate at first. At the end of the study, they

were still interested in improving the activities they developed and tailoring them to their needs for subsequent classes. They appreciated having an added tool to use, especially for teaching writing and introducing class projects. They acknowledged that they must take more time to plan and that it should ideally be at the beginning of the semester. This way they can feel more confident when teaching their labs and have more time to consider which classes would best be served by this approach. They can also plan the grammar they would cover, for example the class before or after using the DDL, to give a sense of continuity, which they felt was lacking at some points between their labs.

It is reasonable to think that any teacher in a Cégep context who is willing to introduce a parallel concordancer can do so. While it may require slightly more planning time in the first semester, it can benefit the class by encouraging students to be more autonomous in their learning and to see grammar from a different angle. It can also be integrated as part of class projects or as a revision tool for essay writing, which is a common activity in this context. It should be used with grammar that was already covered in class, to acquire depth of learning (Cobb, 1999). In the interviews, the students were clear in saying that if they did not know what an error or grammar feature was, they could not find the appropriate keyword or know how to find the correct form. By prioritizing depth with the parallel concordancer and using the L1 as a support when the L2 context is insufficient, the teacher can prevent disappointments and avoid wasted time. Not only will it contribute to the overall satisfaction of the teacher for a given lesson, but it will also set realistic learning goals.

This feasibility study has limitations which must be outlined. The parallel concordancer was used for Francophone learners of English; other L1s might produce

different results because the parallel concordancer is not necessarily readily available in all languages. Tradooit is available in three languages (French, English and Spanish), but other tools such as Linguee support multiple languages, including Portuguese, Swedish, and Danish. Such a parallel concordancer could have been used for this study and perhaps reduce the novelty effect among some students who were already using it. However, we decided not to use this option because the corpora are not as tightly controlled for quality as Tradooit, which is managed by translators. Furthermore, Linguee has an elaborate dictionary included, which would have eliminated the need for students to consult the concordance lines.

The results showed by the concordancer sometimes had translation mistakes, which is common with this type of tool. Although this issue was known from the outset and the sources were found to be reliable, it may have been a distraction for the students. The teachers also brought up this issue. Their conclusion was that it would either confuse the students who are unsure about their English, or be an opportunity for learning, thus developing students' language awareness when dealing with authentic material.

It is also worth noting that the focus of the courses the groups were in was not just on grammar. Vocabulary is an important aspect to be covered as well. In Teacher A's Lab 2, vocabulary was the main focus and it had to be left out in the results which certainly had an effect on the overall results and interpretations. Group 1 had a specific linguistic interest as part of their electives, while Groups 2-3 were taking general English courses meant to prepare them for university. The different course curricula have affected the data which were carefully sorted to remove any aspects that did not involve grammar (e.g., vocabulary). The data were affected by a lack of variety and depth of grammar,

which a typical grammar class would include. The grammar features selected by the teachers were sometimes repetitive or not level-appropriate. It is also arguable whether some features were purely grammar or lexicogrammar, especially in verb + preposition or noun + preposition collocates (e.g., *to deal with, an attitude towards*). The decision was made to include lexicogrammar because otherwise, the teachers would have had to be trained to distinguish between the two concepts, which was not considered relevant for the purpose of this study.

Some students seemed confused at the start of the treatment, unsure how to draw conclusions from the concordance lines. Lab 1 did not receive a good feedback overall, but the overall attitude became more positive over time, which is similar to what happened in Lewandowska (2013). As the students gained more confidence in their skills and understood what was expected from them, they enjoyed the labs more. As for teachers, the positive change in their attitude and their confidence using the tool was more noticeable, as they stressed in the interviews. Visualizing their labs and how to adapt the tool to their class was difficult. It is possible that their attitude might have had an influence on their students, an issue raised in Liu and Jiang (2009), who call for more attention to this aspect.

The feasibility study did not take into account whether students worked in pairs or not, which could have had an impact on completion and accuracy rates, and on students' overall perceptions of the tool and its possible uses. Students' understanding of the grammar being covered was also not measured, as the main purpose was to assess the feasibility of implementing the use of a parallel concordancer for some problematic

features at the Cégep level. Moreover, students' previous knowledge of the grammar selected by the teachers was not diagnosed in a grammaticality judgement test.

Future studies should further investigate what activities teachers can create using the parallel concordancer. These activities should make better use of the functions the tool offers, particularly the *bitext* function, as it provides more context. There should be some investigation as to how to adapt the activities to provide enough context and clarify meaning which is not always evident using the concordance lines alone (e.g. verb tenses). The results of this study hint at a need to use the L1 as a starting point, as it allows the teacher to build on students' prior knowledge.

Another area of interest is how having students choose their own linguistic challenges in an investigation task can help them improve their language skills. This was the lab the students enjoyed the most, as it seemed to have a good balance between the freedom it allowed them and the challenge it posed. Future research should document if some linguistic challenges are more amenable to the tool. Ideally, as suggested by some students, those linguistic challenges should come from the students' own writing.

The next logical step would be to measure the parallel concordancer's effectiveness on learning. By using the recommendations of the current study on training and designing labs that are focussed, clearly articulated and relevant to the course matter, students should be compared using the parallel concordancer versus not using it for the same grammar features. This way, it would be possible to see whether the tool can have an effect on learning and whether there are gains.

It is hoped that this study will give new directions in exploiting the potential a parallel concordancer offers to the language classroom. With the continuous

technological advances, new functions will offer even more possibilities for teaching and learning.

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Appendix A

Student Worksheet on Searching Verb Phrases in COCA [3]

verb phrases

A **verb phrase** (VP) is the verb and all the words around it such as adverbs and function words, for example: ***is, seems to be, would likely indicate, clearly has been shown, is highly unlikely, is critically important***. Notice that the verb phrase includes all the modifiers (adverbs) and function words (articles, pronouns, conjunctions and prepositions) connected to it. Sometimes a verb phrase (e.g., gerund or infinitive) can take the position of a subject or an object. In these example sentences below, the main verb phrase is in **bold** and verb phrases are in *italics*. The subjects are underlined. Even though these underlined phrases act as subjects, they are also verb phrases.

Replacing the water channel with a copper wire **yielded nearly** the same output. [1]

Maintaining a stable temperature **is critically important**.

To maintain a stable temperature **is critical**.

It **is important** *to write* in a formal, academic style.

An important point **is** *knowing how to paraphrase.*

PRACTICE 1. Search *clearly [v*]* in the COCA corpus or *clearly* in your own corpus with Antconc. Find four VPs using this adverb and write them below.

1. clearly defined 3. clearly shows
2. clearly stated 4. clearly demonstrated

PRACTICE 2. Think of three AWL verbs that you might use in your paper. Check a corpus to see what common VPs are used with these verbs. Write sentences using these VPs.

Example: *calculate/ were calculated using/ The results were calculated using Equation 1.*

1. illustrate / dramatically illustrate / These results dramatically illustrate that t/P rate affects gene transfer
2. indicate / not necessarily indicate / This data does not necessarily indicate that gene transfer rate is zero percent.
3. predict / can accurately predict / From these results we can accurately predict that fibronectin has something to do with cell adhesion.

[3] *Adapted from Oghigian & Chujo (2012)*

Appendix B

Phase 2- Modal Auxiliaries Task (Original version)

Name: _____

Group: _____ Time Start: _____

Time End: _____

Introduction to Using Corpora for Learning English Grammar

Part 1 – Introduction

1. For the following auxiliaries, make a list of all the French translations that you can find from the excerpts of corpora. Then, select the most common one(s).

- Have to: _____
- Must: _____
- Don't have to: _____
- Must not: _____

2. Compare the French translations of *have to and must*. What do they have in common? What do you think the meaning/function is in your own words?

_____
_____
_____
_____

3. Compare the French translations of don't *have to and must not*. What do they have in common? What do you think the meaning/function is in your own words?

_____
_____
_____
_____

4. Compare *have to* and *don't have to*, *must* and *must not*. How do they differ? Summarize your findings.

_____
_____
_____
_____

ANSWER: Have to and must have similar translations in French and are functionally similar, but not their negative form.

Have to

Yeah, I suppose I have time for one drink and 45 minutes to an hour of some other activity, but after that, I **have to** get back to a top-secret research project I'm working on.
Oui, je suppose que j'ai le temps de prendre un verre, et 45 minutes à une heure pour une autre activité, mais ensuite, je **dois** retourner travailler à mon projet ultrasecret.

Fascinating, but what does a spirit who plays ding dong ditch **have to** do with the ghost of a bunch of american soldiers fighting the same battle over and over again?
C'est fascinant, mais qu'est ce qu'un esprit qui joue à " ding dong ditch " **a à** voir avec les fantômes de soldats américains qui continuent le même combat en boucle?

If you can't provide us with an alibi for the nights in question, then I'm gonna **have to** exercise my right to hold you for 24 hours while I obtain a warrant to search your apartment.
Si vous ne fournissez pas un alibi, je vais **devoir user de** mon droit de vous placer en garde à vue pendant 24h, le temps d'obtenir un mandat pour fouiller votre domicile.

So if we can verify that he was in Nevada the night that Julie Paxon was killed, then we **have to** assume that the DNA results were a function of some kind of ... error.
Donc si on peut vérifier qu'il était dans le Nevada la nuit où Julie Paxon a été tuée, alors **on pourra** considérer que les test ADN ont fait l'objet d'une sorte ... d'erreur.

Yeah unfortunately we can't tell the people on Earth that we need them to remove them, and we'il just **have to** wait for them to figure it out for themselves.
Oui mais malheureusement on ne peut pas dire à ceux sur Terre que l'on a besoin qu'ils les enlèvent, **on doit** attendre qu'ils s'en rendent compte d'eux-mêmes.

Now, in good conscience, I **have to** inform you that using his software is in violation of the Patriot Act, the Strategic Defense Initiative and the National Security Act of 1948, which created the CIA.
Pour ma conscience, je **dois t'**informer qu'utiliser ce logiciel est une violation du Patriot Act, de l'initiative de défense stratégique, et le National Security Act de 1948 qui a créé la CIA.

Must

If a man wants to succeed in his work, that is, to achieve the anticipated results, he **must** bring his ideas ... into correspondence with the laws of ... the objective external world.
Quand un homme veut réussir dans son travail, c'est-à-dire s'il veut anticiper les résultats, il **doit** mettre ses idées ... en concordance avec les lois ... du monde objectif externe.

I keep thinking about all these couples who are desperate to have a child of their own, and here's this woman ... completely convinced that her son **must** die, that he's the embodiment of evil.
J'arrête pas de penser à tous ces couples qui n'arrivent pas à avoir d'enfants, et voilà cette femme ... totalement convaincue que son fils **doit** mourir, qu'il est l'incarnation du mal.

Article or a preposition which pertains to every member of a series ... **must** either be used only before the first term of the series ... or before each and every term.
Un article ou une préposition qui se rapporte à chaque terme de la série **doit** être utilisé soit uniquement devant le premier terme, soit devant chaque terme.

Darnell's dad wasn't **must** of a father, but he was one of the best covert government agents, which meant having drinks after work had a whole different meaning.
Son père **n'**était pas exemplaire, mais c'était l'un des meilleurs agents du gouvernement, ce qui donnait un autre sens au pot entre amis après le boulot.

Well, this **must** be our lucky day, 'cause this meeting, or this job interview --which is I guess what it is --shouldn't take me more than a couple of hours.
Ca **doit** être notre jour de chance, cette réunion, ou cet entretien d'embauche, je suppose que c'est ce dont il s'agit, ne devrait me prendre que quelques heures.

Anyway, after a lot of tedious, although I **must** say, ultimately very brilliant work, if I do say so myself, I was able to reset the stones.
Bref, après un long et ennuyeux, mais, je **dois** dire, finalement très brillant travail, à mon sens, j'ai réussi à réinitialiser les pierres.

Don’t have to

But there's only one thing I know that's more satisfying than nailing Luka, and that is protecting you, so you **don't have to** worry about silvan Luka ever again.
Mais il n'y a qu'une chose que je sais que c'est plus satisfaisant de clouage Luka, et c'est vous protéger, si vous **n'avez pas à** vous soucier de Silvan Luka plus jamais.

They **don't have to** be horrible things that happen to you, there's things that happen to you and then there are catalysts for something else.
Elles **n'ont pas besoin d'**être des choses horribles, ce sont des choses qui vous arrivent et qui sont un catalyseur pour autre chose.

Mr. Chairman, members of the board... ... I **don't have to** tell anyone here... ... that RJR Nabisco has remained wildly undervalued... ... despite our steady yearly profits... ...despite your management's best efforts to increase shareholder values.
M. le président, chers membres du conseil, il **n'est nul besoin de** vous rappeler que RJR Nabisco est demeurée largement en dessous de sa valeur, malgré nos profits annuels réguliers, malgré les efforts déployés par la direction pour augmenter la valeur des actions.

You must always choose the one that is right... the one where you **don't have to** bend... where you don't fall.
Il faut toujours choisir celui qui est bien... celui où on **n'a pas besoin de se** courber... où on ne tombe pas...

Must not

Jethro, and what he knows of Southern agents... and the $30,000 he's carrying, **must not** be... allowed to reach the Union authorities.
Jethro, avec ce qu'il sait des agents sudistes et les 30 000 $ qu'il transporte, **ne doit pas**... atteindre les autorités de l'Union.

But I must say to you, sir, whatever your feelings are, you **must not** call me here... at any hour of the night or day, even in an emergency.
Mais, Monsieur, quel que soit vos sentiments, vous **ne devez pas** m'appeler ici à n'importe quelle heure du jour ou de la nuit, même en cas d'urgence!

But you and I, gentlemen, **must not** allow these circumstances... to bring about an undue amount of sympathy for the accused.
Mais vous et moi, messieurs, **ne devons** laisser ces conditions nous apitoyer plus que de raison sur le sort de l'accusée.

I have said very clearly that I want to see the creation of Sable Island's national park, but that we **must not** allow the integrity of the national park system to be sacrificed.
J'ai dit très clairement que je souhaitais la création du parc national de l'Île-de-Sable. Toutefois, il **ne faut pas** porter atteinte à l'intégrité de notre réseau de parcs nationaux.

One **must not** love oneself so much, as to avoid getting involved in the risks of life that history demands of us, and those that fend off danger will lose their lives.
On **ne doit pas tenir** à sa personne au point de soustraire sa vie aux risques que l'histoire nous demande de prendre, et ceux qui esquivent le danger perdront leur vie.

Part 2 – Online Corpora- Aspects of Must

The following activity requires that you use a parallel concordancer to investigate the use of different auxiliary verbs. Go on this website to access the tool: http://tradooit.com. Select English-French.

In French, *devoir* can be used in two different ways as in the following examples:

1. Ça **doit** être notre jour de chance, cette réunion, ou cet entretien d'embauche, je suppose que c'est ce dont il s'agit, ne devrait me prendre que quelques heures.
2. Mais plus que jamais, nous **devons** nous unir, car certains, parmi nous, sont prêts à détruire ce que nous avons construit.

Compare the two examples. What do they mean exactly in your own words?

_____
_____
_____
_____
_____

Now, try to check how it translates into English, using the corpus. Identify the two types you found In French and extract an excerpt from the corpus that reflects the same meaning in English.

You can get a better idea of the context when you read a concordance line by clicking on *Voir le bitexte*.

**Tip: If you can't find interesting results, try selecting a corpus on the left sidebar under Sources. For example, try selecting MOVIE.*

When you think you found the two types in English, transcribe the excerpts in which you found them.

- Type 1:

Excerpt:_____
_____
_____
_____
_____

- Type 2:

Excerpt:_____
_____
_____
_____
_____

ANSWERS: **Prohibition** (He must not like this film) or **Logical probability** (He must not talk during the film).

2. Now, for each type, determine the pattern that helped you understand which type *must* was used for. Use the excerpts you have found and compare them to other examples in the corpus.

Type 1:

_____
_____
_____

Type 2:

_____
_____
_____

3. Tenses of *must not*

   Investigate how *must not* is used in the different verb tenses in English (Present, Future, Past).
   Find examples where the form is the same and/or different. Specify what keyword you used to find your answers and provide excerpts from the corpus to support your findings.

   1. Searched term: _____
      _____
      _____
      _____
      _____
      _____
      _____

   2. Searched term: _____
      _____
      _____
      _____
      _____
      _____
      _____

   3. Searched term: _____
      _____
      _____
      _____
      _____
      _____
      _____

ANSWERS:

Present: ne doit pas = must not

Future: ne devra pas = must not

Past: ne devait pas = didn't have to, couldn't, not allowed to, was not supposed to, was not meant to

Part 3 - Production

A. Dialogue

Based on what you just learnt about the use of *have to, must, don't have to* and *must not*, create a dialogue in which the target sentence can be used within the context you created. You will need to create two short dialogues (one for each sentence being contrasted) for **two** of the following:

1. She must be Canadian to be speak like that.
   She must be Canadian to come here.

2. Workers must not complain about their poor wage.
   Workers don't have to complain about their wage.

3. The next party must not be on a Thursday.
   The next party doesn't have to be on a Thursday.

4. You must leave now.
   You have to leave now.

B. Game- Find someone who…

Has to prepare solid arguments.
Must believe in his people.
Doesn't have to have experience to get the job.
Must not tell lies.

ANSWER: Politician/President

Now, it's your turn to create one!

Appendix C

Teaching Lesson Template

Preparation

Item	Comments
Grammar feature selected	
Rationale for choosing the grammar feature	
Objectives	
Outcomes	
Anticipated problems	
Potential solutions	

Lesson Plan[4]

Time anticipated: Time needed:

Stage	Procedure	Time	Interaction (S-S, T-S)	Comments
1- Hypothesis Formation (in-class)	Worksheet + Pairwork			
2- Feedback (in-class)	Class discussion			
3- Hypothesis Testing (at home)	Homework + Individual			

[4] Adapted from CELTA TP Lesson Plan

4- Production (follow-up class)	Exercises + Feedback *Organisation up to the teacher			
5- Suggestions/ Ideas	Anything else you feel should be included in your lesson			

Appendix D

Phase 2- Modal Auxiliaries Task (Teacher version)

Name: _____ Group: _____

Time Start: _____

Time End: _____

Modal Auxiliaries Lesson

Introduction to Using Corpora to Learn English Grammar

Part 1 – Introduction

1. For the following auxiliaries, make a list of all the French translations that you can find from the quotations in the document on Moodle; then, select the most common one(s).

- Have to:

  _____

- Must:

  _____

- Don't have to:

  _____

- Must not:

  _____

2. Compare the French translations of *have to* and *must*.

What do they have in common?

_____

_____

_____

What do you think their meaning/function is in your own words?

_____

_____

_____

3. Compare the French translations of *don't have to* and *must not*.

What do they have in common?

_____

_____

_____

What do you think their meaning/function is in your own words?

_____

_____

_____

4. Compare *have to* and *don't have to*, *must* and *must not*. How do they differ? Summarize your findings.

a. *have to* and *don't have to*:

_____

_____

_____

b. *must* and *must not*:

_____

_____

_____

Part 2 – Online Corpora- Aspects of Must

In French, *devoir* can be used in two different ways as seen in the following examples:

1. Ça **doit** être notre jour de chance, cette réunion, ou cet entretien d'embauche, je suppose que c'est ce dont il s'agit, ne devrait me prendre que quelques heures.
2. Mais plus que jamais, nous **devons** nous unir, car certains, parmi nous, sont prêts à détruire ce que nous avons construit.

Compare the two examples. What do they mean exactly in your own words?

_____

_____

_____

_____

_____

The following activity requires that you use a parallel concordancer to investigate the use of different auxiliary verbs. Go to this website to access the tool: http://tradooit.com. Select English-French.

Using the corpus, check how the above-examples translates into English. Identify the two grammatical functions you found in French for *devoir* and extract an excerpt in English from the corpus that reflects the same meaning.

You can get a better idea of the sentence's context by clicking on "*Voir le bitexte"*.

**Tip: If you can't find interesting results, try selecting a corpus on the left sidebar under Sources. For example, try selecting MOVIE.*

When you think you've found the two grammatical functions in English for *devoir* as seen in examples 1 and 2, transcribe the excerpts in which you found them.

- Type 1:

Excerpt:_____
_____
_____
_____
_____

- Type 2:

Excerpt:_____
_____
_____
_____
_____

2. Now, for the two grammatical functions identified, determine the pattern that helped you understand which type *must* was used for. Use the excerpts you have found and compare them to other examples in the corpus.

Type 1:

_____
_____
_____

Type 2:

_____
_____
_____

3. Tenses of *must not*

Investigate how *must not* is used in the different verb tenses in English. Check how it corresponds to French verb tenses (Present, Future, Past). You can search *devoir* (and its conjugations) and *must not* to find your answers. Specify what keyword you used to find your answers (which French form you used) and provide excerpts from the corpus to support your findings.

1. Present
   Searched term: _____
   _____
   _____
   _____
   _____
   _____
   _____

2. Past
   Searched term: _____
   _____
   _____
   _____
   _____
   _____
   _____

3. Future
   Searched term: _____
   _____
   _____
   _____
   _____
   _____

Appendix E

Phase 3 - Proofreading Task[5]

Name(s): _____ Gr. _____

_____

Starting time: _____

End time: _____

Proofreading Task[6]

Instruction: Each question below has one mistake. Please mark the mistake (A, B, C, or D) and make the appropriate correction. Provide two examples from corpus data to justify your correction.

Example

It is uncomfortable to (A) have someone that you have no idea about (B) stand beside you (C) and watch on every move you make. (D)

D Correction: watch every move you make

- He said she is watching every move you make (from HANSARD)
- Don't watch every move I make (from HANSARD)

1. I like travelling (A) a lot. I've already went (B) to France, Spain, Germany and Japan. I'm planning to go to Australia in June. My boyfriend will probably come with me (D), but it isn't official yet. (C)

Answer: _____ Correction:

_____

Example #1:

_____

_____(Source:)

Example #2:

_____

_____(Source:)

[5] Adapted from Chang & Sun (2009)

[6] Adapted by Teacher B

2. I have a part time job. I work at Simons in Old Quebec since last September. I really like it
A
and I get to practice English with the tourists.
B

Answer: _____ Correction:

_____

Example #1:

_____

_____(Source:)

Example #2:

_____

_____(Source:)

3. Before to start cegep, I didn't like mathematics. Now, I really enjoy it because a teacher made
A B
me understand the logic behind it.
C D

Answer: _____ Correction:

_____

Example #1:

_____

_____(Source:)

Example #2:

_____

_____(Source:)

4. I have many dreams. If I would have more money, I would start an organization for children's
A B
C
rights in developing countries.
D

Answer: _____ Correction:

_____

Example #1:

_____

_____(Source:)

Example #2:

_____

_____(Source:)

5. I am born on October 31st, so I really like Halloween. Spooky things don't scare me; they
A
make me laugh. I love watching horror movies at night.
B C D

Answer: _____ Correction:

_____

Example #1:

_____

_____(Source:)

Example #2:

_____

_____(Source:)

6. John asked Claire to marry with him, but she turned him down because she still
A B
felt insecure about their relationship. Poor John, this is the third time he has been
C D
refused by Claire!

Answer: _____ Correction:

_____

Example #1:

_____

_____(Source:)

Example #2:

_____

_____(Source:)

7. It is not easy dealing clients from different countries because sooner or later the
A B
difference in culture will turn out to be a problem.
C D

Answer: _____ Correction:

_____

Example #1:

_____

_____(Source:)

Example #2:

_____

_____(Source:)

8. To be a good salesclerk, you are supposed to have a friendly attitude at every
A B C
customer you give service to.
D

Answer: _____ Correction:

_____

Example #1:

_____

_____(Source:)

Example #2:

_____

_____(Source:)

9. Even though it was only one hour after the devastating earthquake, the rescue
A

team sent by the government went to the disaster area without delay regardless to
B C D
the aftershocks there might be.

Answer: _____ Correction:

_____

Example #1:

_____

_____(Source:)

Example #2:

_____

_____(Source:)

10. As part of this company, you are required to call to all your clients personally
A B C
and say happy New Year to them.
D

Answer: _____ Correction:

_____

Example #1:

_____

_____(Source:)

Example #2:

_____

_____(Source:)

Appendix F

Phase 4- Investigation Task (Teacher A)

Name(s): _____
Group: _____

Lab #3

Starting time: _____

End time: _____

Instructions: Go over the text available on Moodle and **identify 4 examples of problems** related to some written challenges. Provide a **corrected version** of the example, and **explain the change**. Finally, provide an example from corpus data (www.tradooit.com) for each problem.

Example:

- Linguistic challenge: Avoid French syntactic structures.
- Example of a mistake/problem in English: Do you know what is the capital of Cuba?
- Correct/Improved English Form: Do you know what the capital of Cuba is?
- Explanation of change: Whereas French can repeat the interrogative form in separate clauses in the same sentence, English uses the interrogative structure only once per sentence to express a question.
- Example from corpus data:

English	French
I certainly do know what it is like for young people. http://www.parl.gc.ca/HousePublications/.../Publication.aspx?Language=E&Mode=1&Parl=38&Ses=1&DocId=1402311)	Je sais fort bien quelle est la situation à laquelle les jeunes sont confrontés. http://www.parl.gc.ca/HousePublications/.../Publication.aspx?Language=F&Mode=1&Parl=38&Ses=1&DocId=1402311

1) **Challenge**: Use the appropriate verb tense.

- Example of a mistake/problem in English: _____

_____

- Correct/Improved English Form: _____

_____

- Explanation of change: _____

_____

- Example from corpus data:

English	French

2) **Challenge**: Improve vocabulary by finding synonyms for weak words. _____

- Example of a mistake/problem in English: _____

_____

- Correct/Improved English Form: _____

_____

- Explanation of change: _____

_____

- Example from corpus data:

English	French

3) **Challenge**: Choose the right preposition.

- Example of a mistake/problem in English: _____
- Correct/Improved English Form: _____
- Explanation of change: _____
- Example from corpus data:

English	French

4) **Challenge**: Avoid French syntactic structures.

- Example of a mistake/problem in English: _____
- Correct/Improved English Form: _____
- Explanation of change: _____
- Example from corpus data:

English	French

5) **Challenge**: Use the Present Perfect and Simple Past tenses correctly.

- Example of a mistake/problem in English: _____
- Correct/Improved English form: _____
- Explanation of change: _____
- Example from corpus data:

English	French

6) **Challenge**: Avoid run-on sentences.

- Example of a mistake/problem in English: _____
- Correct/Improved English form: _____
- Explanation of change: _____

- Example from corpus data:

English	French

Appendix G

Questionnaire – Learning benefits and challenges of a parallel concordancer

Content						
1. The concordancer activities we did in the lab were **useful** for understanding grammar.	Strongly disagree 1	2	3	4	5	Strongly agree 6
2. I **discovered** aspects of grammar that I did not know.	Strongly disagree 1	2	3	4	5	Strongly agree 6
3. The translations in the concordancer were **useful** for understanding grammar.	Strongly disagree 1	2	3	4	5	Strongly agree 6
4. Using a concordancer **helps me correct my own** grammar mistakes.	Strongly disagree 1	2	3	4	5	Strongly agree 6
5. I found it **difficult** to use the concordancer (Tradooit) on my own.	Strongly disagree 1	2	3	4	5	Strongly agree 6
6. I am interested in using Tradooit **(without translations)** in the future.	Strongly disagree 1	2	3	4	5	Strongly agree 6
7. I am interested in using Tradooit **(with translations)** in the future.	Strongly disagree 1	2	3	4	5	Strongly agree 6
8. I had used a parallel concordancer before this study **(e.g.Linguee)**	Strongly disagree 1	2	3	4	5	Strongly agree 6

1. Name one of the grammar points you researched with the parallel concordancer.

2. What did you find helpful about using the parallel concordancer in learning about this grammar point?

3. What did you learn about this grammar point?

Last month, you did three different labs:

- Lab 1: You had to discover the meaning of the modal auxiliaries (have to, don't have to, must and must not).
- Lab 2: You had a set of sentences you had to proofread.
- Lab 3: You chose some grammar points on your own to investigate, based on a text.

4. Which lab did you prefer and why?

5. What lab did you find the most challenging and why?

6. Do you feel you will be able to use the grammar points you have investigated in Lab 3 more appropriately now? Why or why not?

7. For what purpose would you use a concordancer (e.g. Tradooit, Linguee) on your own in the future? If you would not use it, please explain why.

Appendix H

Teacher Log

Fill out the log after each class every week. The questions should be all addressed in your reflection to the length you feel is necessary. Please feel free to include any other comments or reflections you feel are appropriate.

Date	Questions	Reflection
Week 1 (Training)	1. How did you find the training? 2. What is still unclear to you? 3. How do you see that the parallel concordancer might be useful based on your teaching experience?	
Week 2	1. Do you feel you were prepared enough for the class? 2. How receptive were the students? 3. What type of guidance did they need the most? 4. Overall, are you satisfied with the lesson?	

Week 3	1. Do you feel you were prepared enough for the class? 2. What is the strength of your lesson? 3. What is the weakness of your lesson? 4. How could it be improved if you taught it again? 5. Do you feel the time ratio between planning and teaching was worth it? Why?	
Week 4	1. What are your impressions of students' investigations? 2. Do you feel that they learned and felt involved in the process? 3. Did any of them ask for guidance? If so, what type of guidance did they need?	

Week 5 (Post-study)	1. According to you what went well during the treatment? What did not go as planned? 2. How would you do things differently if you taught the same class again using the parallel concordancer? 3. Do you believe the tool has potential for teaching grammar?	

Appendix I

Semi-Structured Interview Questions

Teachers[7]

1. In general, how did you like the experience of teaching grammar with a parallel concordancer in this project?
2. Did you encounter any difficulties or challenges when teaching with a parallel concordancer? If so, what were they and why? How did you deal with them?
3. Do you feel that the training was enough for you to use the concordancer? Why or why not?
4. How did you go about planning your lessons? Are you satisfied with the result of your planning? Did you find it time-consuming? Would you spend more or less time on the planning stage if you taught these classes again?
5. How would you describe your classes when you taught them using the concordancer? Do you think the lessons were successful?
    - IF YES: What made it successful (e.g. Student performance, engagement, involvement)?
    - IF NO: What could have made it successful? (E.g. monitoring, incidental feedback, variety of task, variety of grammar points, use of different sources for mistakes (students' essays, etc.))
6. Would you consider using a parallel concordancer to teach English grammar in the future? Why or why not? If yes, what grammar features would you consider?

Students[8]

1. In general, how did you like the experience of learning grammar with a parallel concordancer in this project?
2. Did you encounter any difficulties or challenges when learning with a parallel concordancer? If so, how did you deal with them?
3. How did you do the tasks (e.g. you looked for the word in French, you used Google to find the rule first, you tried using a phrase in English then broke down into smaller parts through trial and error)? The modal auxiliaries? The proofreading task? The last lab with the linguistic challenges? Which lab did you prefer and why?
4. Would you consider using a parallel concordancer to learn English grammar in the future? Why or why not? If yes, what grammar features would you consider?
5. Is there anything you would like to add?

[7] Idem

[8] Adapted from Lin (2015)

Appendix J

Source text for Teacher B's Lab 3

An entertaining way to talk about studying

Dear Thomas Frank,

I am writing this email to you today because I want you to know how much I like your YouTube channel. I watched your videos since the beginning of the semester and I think every student should do the same. I hope that this email will help you stay motivate to continue and even upgrade your work.

The first video I've watched is *How to start a new semester?* and I first thought it was nice of you to share your tips about school. Even if I knew a lot of them, it was a great reminder of the importance of been organized before becoming busy. I think your force is that you look very informed about your subject in each and all of your videos. You talk often about studies and books to support your point. Your public can see that you don't try to talk about subjects you don't master. Consequently, your channel looks serious and the information seems reliable. Furthermore, even if it is serious, you always find a way to be funny or entertaining. In that way, I like the way you use technology as a tool to simplify a student's life. It shows great adaptation to the current reality. Finally, I like that you use your personal experience as an example without going too deep into the details.

In my opinion, there is one thing you could improve to make your channel even better. When I watched your video about notes taking techniques, I felt you could have said so much more about it. In general, it looks a little like you rush to explain quickly because you don't want the video to be too long. But don't worry about it, you can take your time!

Finally, I wanted to tell you that I have been thinking a lot about the *Stop trying to find your passion* video because I don't agree completely with you on this subject. It is really interesting that you talk about a debatable question! Anyway, I don't want to challenge you on the subject, but if you are interested by success, I recommend that you read *Outliers* by Malcolm Gladwell. The author tries to deconstruct our ideas of success and, as your work, it made me thinking.

I hope you will be giving advice for a long time because I'm sure it is helping many students. I don't know if you have already done it, but I believe it could be a good idea to make a video about ways to make realistic schedules that allow at the same time fun breaks and very productive moments.

Best regards,
Haggth Thikhhj

P.S.: I often procrastinate while watching your videos about productivity. Perhaps you would have a solution to that?

470 words