

## “IT’S EASY. YOU CLICK, AND IT COMES OUT”: EMERGING DISCOURSES AROUND LANGUAGE TECHNOLOGIES IN SECONDARY EDUCATION IN CATALONIA

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### ABSTRACT

This is a qualitative-interpretative study concerning how language teachers and students in Catalonia perceive and appropriate language technologies. By language technologies we mean a set of language resources: dictionaries, automated translation software, spell and grammar checkers, and the like, serving as scaffolding tools in reading and writing online. Through in-depth interviews and classroom observation, metadiscourses emerge, showing differences between teacher and student practices. Results showed three relevant themes: (1) L1 teachers’ versus L2 teachers’ perceived applicability of language resources, (2) students’ preference and perceived potential, and (3) perceptions on translation. Divergent discourses emerged from teachers and students. For instance, teachers promoted language technologies with which they could maintain a high degree of control over the classroom like prescriptive, official dictionaries whereas students preferred (often without the consent from the teacher) more multilingual, multifunctional technologies like machine translation. Such findings led us to discuss that there is a dysfunctional discourse between teachers’ conceptions and students’ practices in relation to language technologies. Consequently, language teachers and students in Catalonia may not fully profit from the affordances of language technologies and other digital technologies at their disposal. More training seems necessary when implementing large-scale digitization programs in relation to digital literacy, including the use of language technologies, and also discipline-specific methodological training in relation to technology-enhanced autonomous learning, information seeking and verification (including linguistic information) or plurilingualism and translation in language education.

**Keywords:** Dictionaries, Digital literacy, Discourse analysis, EFL, ICT, Language learning, Language technologies, Machine translation

### INTRODUCTION

“*It’s easy, you put it in there, you click, and it comes out.*” This is the statement made by a 14-year-old student during an interview when asked how she would use Google Translate. Her claim poses relevant questions: Are language technologies easy to use? Do they offer ready-made answers? Do students need strategies and competencies to capitalize on their potential? Are students learning language technologies in the language classrooms or are language technologies and resources so ‘easy’ to use that students and teachers somehow take them for granted? Before giving possible answers to these issues, let us provide background information and operational definition on the context and concepts used in this article: (1) *language resources and technologies*, (2) *digitization programs in multilingual Catalonia*, and (3) *digital*

*literacy.*

- (1) *Language resources and technologies.* When we refer to “language resources” or “language technologies”, we consider the following definition:

The term ‘language resources’ refers to a set of speech or language data and descriptions in machine readable form, used e.g. for building, improving or evaluating natural language and speech algorithms or systems, or, as core resources for the software localization and language services industries, for language studies, electronic publishing, international transactions, subject-area specialists and end users. Examples of language resources are written and spoken corpora, computational lexicons, terminology databases, speech collection and processing, etc. Basic software tools are also important for the acquisition, preparation, collection, management, customization and use of these language resources and other resources. (European Language Resources Association, 2008).

In specialized fields like Computational Linguistics, there is a difference between *language technology* (for instance, a concordancer to access a corpus of texts) and *language resource* (for instance, the corpus itself where the concordancer feeds on) (Llisterri, 2003, 2007). However, for the purposes of research in language education. We use both terms — language technology and language resource— indistinctively. We construe *language resources/technologies* as the frequent reading and writing *scaffolding tools* used in the language classroom (Warschauer, 2010), such dictionaries, spell and grammar checker or translation software. In addition, we are concerned with any use or search online in order for the language learner to meet a communicative need while trying to conclude a literacy practice (Cassany, 2016).

Language technologies are commonplace in daily language learning practice inside and outside the classroom. It has become easier to look up a word in WordReference or translate a phrase with Google Translate. In prior studies we have covered how Catalan youth use and appropriate Google Translate for textual composition (Vazquez-Calvo & Cassany, 2017) or how entry-level university students use digital technologies to complement and support their critical reading skills in English as a foreign language (EFL) (Valero et al., 2015).

- (2) *Digitization programs in multilingual Catalonia.* Apart from the prior studies, little do we know about how teachers and students are capitalizing on language technologies in the specific context of Catalonia. For contextual information, secondary education schools in Catalonia have experienced digitization programs, meaning that in every school, every teacher and every student get a laptop for their teaching/learning. While digitization programs have been in place for some time now, past research indicates that access to technologies is not enough to ensure the success of such programs. Prior research in Catalonia (Alonso Cano, Rivera Vargas, & Guitert Catasús, 2014), Spain (Area et al., 2014) and internationally (Valiente, 2010, 2011) concur in this respect. Also, these past studies look at the digitization programs holistically, and do not necessarily consider particularities in language education, like the use of language technologies.

Also, for contextual information, in Catalonia, there exist three official languages (Catalan, Spanish, and Aranese), there are several curricular ones, (English, French, and others) and some others are used *de facto* (Urdu, Arabic, Chinese, and others). Combining the digital and multilingual contexts, our study seeks to fill the gap in chartering the educational context of language education and the role of language technologies in Catalonia, a particularly rich context for multilingual and *digital literacy* studies.

(3) *Digital literacy*. In this study, an operational definition for digital literacy can be the one from the American Library Association Digital Literacy Taskforce (2011). They define *digital literacy* as “the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills.” We think this definition also applies to language technologies, as language learners do not only need to find linguistic information with the help of digital resources, but also to be able to evaluate information accuracy and adapt potential results and linguistic information to the purposes of their communicative goal. Therefore, at the intersection of technology-mediated language learning, we propose this study, to evaluate how some teachers and students use and perceive the use of language technologies in their natural contexts: *formal language education in technologically enhanced, multilingual schools in Catalonia*.

## LITERATURE REVIEW

Previous discourses around literacy and digital literacy, as well as language education (Cope & Kalantzis, 2009; Warschauer & Grimes, 2008) have covered the changing and dynamic nature of literacy, and while there is agreement that the use of language technologies is part of an advanced digital literacy and scholars promote such a view with various scaffolding ideas and bridging activities (see Reinhardt & Thorne, 2019), there is still more to explore on how those technologies are used and appropriated by students and teachers in real classrooms.

Earlier studies on language technologies include research on computational linguistics and digital lexicography. Studies in this domains aim to describe the technical affordances of language technologies, such as online dictionaries (Fuertes-Olivera & Bergenholtz, 2010, 2011; Gelpí, 1999, 2004; Verlinde, Leroyer, & Binon, 2009) or spell and grammar checkers (Moré, 2006; Reynaldos Sistané, 2011; San-Mateo-Valdehíta, 2016). Also, there are studies on machine translation from a Computational Linguistics perspective, which are primarily concerned with the quality of the output and possible ways to improve it (Cronin, 2013; Fiederer & O’Brien, 2009; Garcia, 2010, 2011; Guerberof, 2009; Sánchez-Martínez, 2012).

Additional studies address the potential of bilingual dictionaries (Alcaraz Mármol & Almela Sánchez-Lafuente, 2013), mobile dictionaries (Rahimi & Miri, 2014), and how to implement effective language instruction with them (Ranalli, 2013). These studies present pedagogical recommendations and/or some minimal classroom interventions, but with limited empirical data. Studies covering the use of machine translation for language learning purposes also focus on pedagogical interventions to make a case for incorporating machine translation instruction in the language curriculum, although they frequently provide insufficient empirical data beyond some classroom intervention or experience (Anderson, 1995; Domínguez, Laurenti, & Aguirre Céliz, 2013; Garcia & Pena, 2011; Niño, 2008, 2020; Somers, 2003). The ongoing profusion of studies trying to promote machine translation in language education leads us to think there is still some reticence to incorporate such a technology in formal language education, as noted by a European report on teachers’ views on the use of translation in language education (Pym, Malmkjaer, & Gutiérrez-Colón Plana, 2013). Research studies on spell and grammar checkers in the classroom feature a similar pattern, mostly providing individual classroom interventions or listing recommendations to use them appropriately (O’Regan, Rivens Mompean, & Desmet, 2010; Rimrott & Heift, 2005). A potential limitation in these studies is that, rather than exploring what happens in the schools, they try to advocate for the implementation of language technologies in the language classroom. To the best of our

knowledge, what teachers and students actually do with these technologies daily seems to remain under-researched, especially in the Catalan and Spanish contexts.

Prior literature suggests there is a need to observe how language technologies are appropriated and perceived so that we can better inform pedagogical recommendations and classroom observations at a later stage. Language technologies are, in our opinion, sociocultural artefacts with an impact in how students and teacher shape and channel their attitudes and dispositions towards language(s) and language education, and potentially act upon their language education decisions. In reference to technology generally, O'Dowd (2007) encapsulates the socioculturally imbricated nature of digital technologies when he encourages "educators to look at technology, not as an independent force that shapes and determines how learners carry out a learning task, but rather as a part of a complex mesh of factors which go to making up any learning context" (pp. 32-33).

Inspired by this sociocultural view on language technologies and the identified lack of naturalistic research looking into language technologies and language education particularly in the context of Catalonia, we propose three research objectives:

RQ1. How do teachers and students in Catalonia capitalize on language technologies to teach and learn language?

RQ2. Do teachers and students possibly maintain divergent discourses regarding these technologies and if that is the case, why?

RQ3. What pedagogical and didactic implications can we extract from the way in which language technologies are being used and discursively appropriated by teachers and students in the language classroom?

## **METHOD**

### **Context and Participants**

We conducted a qualitative-interpretative study centred on two schools (Schools A and B), where a 'one-laptop-per-child' program was in place. We interviewed six language teachers (teachers of Catalan-L1, Spanish-L1, and EFL) and 12 language students, over a period of 3 months. Two of the teachers (Catalan, English) allowed observation of their classes comprising 17 sessions of 60 minutes each, over two weeks. Students in L1 Catalan classes were aged 12 and those learning English (EFL), aged 16.

### *Ethics*

All informants sign an ethical consent that guarantees their anonymity and privacy per the guidelines of the Ethical Committee at Pompeu Fabra University, Barcelona.

### **Data collection and methods**

Data collection took place from May 2013 to June 2014, with periods of discontinuity owing to teachers' availability and inherent secondary school dynamics. We deployed three data collection instruments administered across three phases of the study as per the following order:

**Phase 1.** Two semi-structured interviews with six teachers (60 minutes each). The inclusion criterion was that they had to be language teachers. The participant teachers were three teachers of Catalan (School A), two teachers of English (School B), and one teacher of Spanish (School B).

**Phase 2.** One in-depth interview with six gender-discordant pairs of students (to allow for students' interaction and best transcription) (45 minutes each). The inclusion criterion was that they had to be talkative, and representative of all levels (ages 12-16/17). Additionally, we conducted 33 follow-up interviews with each pair of students. Initial interviews and follow-up interviews amounted to a total of 39.

**Phase 3.** A total of 17 sessions of classroom observation were conducted (seven sessions in School A, Catalan classroom, with students age 12; ten sessions in the School B English classroom, students age 16). As noted earlier, only two of the six teachers who were initially interviewed allowed the researchers to enter their classrooms.

Table 1 provides an overview of the final corpus of data.

*Table 1: Corpus of data*

Phases	Number	Data	School A	School B
Interviews with teachers	12	Time	4h 58'	5h 41'
		Words	49,078	42,865
Interviews with students	39	Time	6h 5'	5h 15'
		Words	41,943	42,570
Classroom observation	17	Time	6h	11h

For the purposes of this paper, we draw mainly on the data from interviews, which we triangulated with the classroom observation. The analysis of interviews followed customary procedures in thematic analysis (Kohlbacher, 2006; Marying, 2000), looking at salient topics and trends from which we set out emergent analytical-interpretative categories. The process was therefore inductive (Cohen, Manion, & Morrison, 2007). Table 2 shows the categories emerging from the analysis of the interviews.

*Table 2: Categories of analysis in interviews*

Category	Interviews with teachers	Interviews with students
1. Descriptive data	Age, subjects, years in service, demographics	Age, languages spoken, academic year, demographics
2. OLPC program	Opinion on massive introduction of technologies	
3. Classroom practices	Perception on whether and how the textbook, the activities, etc., are changing	
4. Literacy	Perception on whether and how reading and writing are changing	
5. Outside the classroom	—	Impact of having a subsidized computer outside the classroom
6. Language technologies	Practices with dictionaries, translation software, spell and grammar checkers	
7. Social networks	—	Digital identity
8. Received training	Training support beyond the provision of technologies	—

Similarly, Table 3 displays the categories that emerged from the analysis of the classroom observation. An ecological and emic approach presided over how we interacted with participants and data. We sought to explore the relationships and discourses present in schools, but in so doing we interacted as participant observers. Our presence in the field grew over time – from selected interviews with teachers to periodical interviews (every fortnight) with students for three months until we entered the classrooms.

Table 3: Categories of analysis in classroom observation

Category	Classroom observation
The use of ICT	Moments and situations where ICT are used.
Digital reading	Reading tasks with a digital component.
Information search online	Moments and situations where an online information search occurs.
Digital writing	Writing tasks with a digital component.
Note-taking	Students' note-taking methods.
Typology of language activities	Language tasks, activities, projects.
The use of language technologies	Moments and situations where language technologies are taught or used.
The use of dictionaries	Moments and situations where dictionaries are taught or used.
The use of translation software.	Moments and situations where machine translation is taught or used.
The use of spell and grammar checkers.	Moments and situations where spell and grammar checkers are taught or used.
The use of other language resources.	Moments and situations where other language technologies not considered above are taught or used.

## RESULTS

Three relevant themes emerged from the data analyses: (1) L1 teachers' versus L2 teachers' perceived applicability of language technologies, (2) students' preference and perceived potential regarding language technologies, and (3) perceptions on translation.

### L1 Teachers versus L2 Teachers' Perceived Applicability of Language Technologies

We found that, depending on the language of instruction, teachers promoted a separate set of language resources, which created favourable conditions for divergent discourses between L1 education and L2 education. Table 4 identifies the language resources/technologies and compares L1/L2 teachers' reported uses.

Table 4: L1/L2 teachers' reported uses of language technologies.

Resource	Catalan-L1*	Spanish-L1	English-L2
Use of machine translators	None	None	Present, but not recommended to students (Google Translate)
Use of dictionaries	Official monolingual dictionaries (Catalan DIEC)	Official (Spanish DRAE) Non-official monolingual dictionaries (WordReference)	Official monolingual dictionaries (Oxford) Non-official multilingual dictionaries (WordReference) Visual dictionaries Frequency dictionaries
Use of spell and grammar checkers	Text processors spell and grammar checkers (MSWord or similar)	Text processors spell and grammar checkers (MSWord or similar)	Students are expected to use them, but they are not explicitly present in classes
Use of other resources	Conjugators (Verbscatalans.com)	None	Multilingual encyclopedias as a specialized dictionary (Wikipedia) Machine translation as a univocal bilingual dictionary (Google Translate)

From the table and the reported uses encountered, we can draw some remarks regarding (1) Catalan-L1 classes and teachers' disposition, (2) Spanish-L1 classes and teacher's disposition, and (3) English-L2 classes and teachers' disposition.

(1) *Catalan-L1 classes and teachers' disposition.* The Catalan classes focused primarily on formal aspects of the language. Catalan teachers tended to supervise grammar and spelling extensively. This matches with a preference in Catalan (L1) for official and monolingual dictionaries and a higher presence of spell and grammar checkers, although there is no specific program or activities to train students in the use of these resources. The training in language resources was passed over to the Technology teacher:

In the Technology module, they work with word processors, including spell and grammar checkers, we [Catalan teachers] work a bit with dictionaries but less with online dictionaries. (Catalan teacher, School A, Quote 1)

Teaching and applying language technologies in the Catalan classroom was perceived as a disruption of the normal flow and development of the language curriculum. This 'disruption' or 'interruption' was used as a pretext for supporting old teaching practices:

There is another problem. Our curriculum and these problems [the use of language technologies] are a universe apart. We could teach many items from the curriculum through using online dictionaries, checkers, a terminological database . . . We could do so, but we need to follow with the curriculum. (Catalan teacher, School A, Quote 2)

This idea of the "curriculum" is pervasive in every school and teachers across Spain and Catalonia. The "curriculum" is the official guide promoted by the educational law in place. The "curriculum" focuses on what content needs to be taught, but teachers are free to choose the best way to teach it, including digitally mediated practices and literacies, that are a transversal skill in the curriculum in Catalonia and Spain.

(2) *Spanish-L1 classes and teacher disposition.* The Spanish teacher focused on content creation and creative writing. There was a preference in these classes of Spanish for monolingual dictionaries in Spanish (official and non-official). However, the teaching of these resources is limited to giving access to them, and the teacher promoted their use at some point when students had a linguistic doubt, but they were not taught how to use them:

Using tools [language technologies] to know what's wrong and correct it . . . I have shown them [language technologies] to the students last year, so they know where they must go. Now we are dealing with syntactical analysis and types of words. I tell them: "the DRAE [Official dictionary of Spanish] has it, search for it". (Spanish teacher, School B, Quote 3)

The Spanish teacher implicitly underscores a high dependence on dictionaries. More specific language resources were not known or explored. For instance, following the previous quote that addresses the treatment of syntax in Spanish, other language technologies may include parsers and morphological and syntactical analysers. This Spanish teacher was satisfied with simply showing students where the answers were, but whether they knew how to interpret those answers remained unclear, because extracting morpho-syntactical information from an online dictionary entry is not straight-forward.

(3) *English-L2 classes and teachers' dispositions.* English teachers, however, favoured any/all linguistic practice possible, together with training students digitally for higher self-autonomy. Learning new vocabulary and acquiring new lexical-syntactical patterns were

paramount to these two teachers. These teachers of English promoted a wider choice of resources in English, and a variety of lexicographic resources (monolingual, multilingual, official, non-official) with various semiotic modes (text, image). However, translation received none or little attention, as did machine translation also. Teachers allowed students to use translation software only if used as a bilingual dictionary, but not to translate phrases, sentences, or larger language chunks. Consequently, they did not teach how to use machine translation software as evidenced in the following interview comment:

Look, traditional dictionaries, Oxford, etc., when you bought them, they would come with a CD-ROM or a practical guide with exercises on how to use a paper-based dictionary. Sometimes, we would bring those materials into our classes so that students would learn how to use them. Until now, we didn't have computers and that's how we teachers had studied. These activities on paper are now on CD-ROM, when you buy the dictionary you get one with exercises, activities, and games, to use your dictionary with the CD-ROM. Publishing houses create these materials. As per Google Translate, we teachers haven't even created anything or investigated, but surely there is some exercise on how to use it . . . (English teacher, School B, Quote 4)

Overall, the applicability of language resources varied according to the language and the methodological tradition of L1-Catalan, L1-Spanish and EFL. Catalan teachers were concerned with language norm (because Catalan normalization is important; there is a Spanish-Catalan diglossia situation in Catalonia, to the detriment of Catalan receiving influxes and interference from Spanish as the dominant language), and so they preferred official or institutional resources and technologies covering spelling and grammar. The Spanish teacher, with a liking for literature and creativity, created possibilities and considered that students can use whichever resource was possible. Instead, EFL teachers tried to guarantee as much language input (lexicon, patterns) as possible, but discarded automated translation software due to a lack of training, and the perception that the software may yield poor language examples. Some teachers acknowledged they did not teach language technologies, adducing two arguments:

*Argument 1:* The use of online language resources is intuitive. Presenting a variety of resources and the links to access them is enough for students to know how to search for linguistic information and solve their doubts (Quote 3).

*Argument 2:* Teaching language technologies disrupts class dynamics. This a recurrent concern among teachers, who frequently instruct students to set their laptops apart when they lecture (making it impossible for students to consult language technologies as they go), or who fear students might get distracted by accessing the Internet:

The thing is that, with all this myriad of resources, you've got to be very skillful when you speak to the class. You can use them as an alternative (to traditional teaching where the teacher holds the valid answer), and then you need to redirect. It's difficult, because in getting out and in [of the resources], you lose students [they get distracted]. (Catalan teacher, School A, Quote 5)

### **Students' Preferences and Perceived Potential of Language Technologies**

Students draw a different picture in relation to the language technologies they use for language learning purposes. They employ a variety of resources, but the preferred and most frequent resource was Google Translate, as reflected in the following student response:

Researcher: Have you ever used the automatic translator lately?  
Student: Almost every day. (Female student, 14, Quote 6)

Besides students' preferences emerging during the interviews, we identified them with respect to data obtained through classroom observation when they had to conduct a search of a language doubt (with no intervention or instruction on the part of the teachers). In total, **we found 98 sequences of online searches**, using language resources 146 times (Google Translate 66 times

and WordReference 33 times, with other resources having a lower or minimal presence). These are displayed in Table 5.

*Table 5: Frequency of uses of language technologies*

Typology	Resources	Classroom observation (f)
<b>Machine Translation</b>	<i>Google Translate</i>	66
<b>Dictionaries</b>	<i>Multilingual WordReference</i>	33
	<i>Multilingual The free dictionary</i>	2
	<i>Catalan DIEC</i>	1
	<i>Catalan Diccionari.cat</i>	1
	<i>Spanish DRAE</i>	1
	<i>English, bilingual Oxford dictionary</i>	1
<b>Spell and Grammar checkers</b>	<i>Checker embedded in word processor</i>	15
	<i>Online checkers</i>	2
<b>Other resources</b>	<i>Search Engines Google</i>	9
	<i>Wikipedia</i>	4
	<i>Parsers</i>	3
	<i>Google Images</i>	2
<b>Total</b>		146

Table 5 shows the most frequent resources and technologies the language learners employed. Broadly speaking, those resources were (1) multilingual, multifunctional, user-friendly resources (Google Translate: 66 occurrences; WordReference: 33 occurrences) and (2) word processors' spell and grammar checker (15 occurrences). Additionally, students normally used generic search engines like Google (9 occurrences) to search for all sorts of linguistic information (spelling, semantics, syntax, and pragmatics). The following analyses enlarge upon our observations and provide insights into how (1) student practice contradicted teacher discourse, and (2) students' use of language technologies was seen as 'like cheating'.

### *Student practice contradicts teacher discourse*

Further investigation of our observations of the resource use shown in Table 5 identified contradicting points between teachers' discourse and students' practices. For instance, while teachers often favoured dictionaries over other resources (L1 teachers, official dictionaries; L2 teachers, WordReference), students were inclined to use Google Translate as a multipurpose resource. While observing the classes, the researcher sat with students to look over their screen activity and captured some of their talk in his field diary. The first session of classroom observation in the English classes patently manifested this teacher-discourse-versus-student-practice dichotomy:

One student asks for the meaning of 'stewardess' and the teacher replies: "If you want more information, you know: WordReference or Oxford." The student sitting next to me whispers to his classmate: "I know this goes faster", while using Google Translate. When he realizes I had been observing what he was doing, he minimizes the Google Translate tag, opened a new tag, and opened WordReference.

Excerpt (i) from the classroom observation diary (School B, Session 1, English)

The observer's bias here plays out well in the following sense: the student being observed first reported to a classmate what he really thought ("I know this [Google Translate] goes

faster”). But when the student realised the researcher was observing, he acted as if the researcher was a teacher who would penalise him for not using the suggested resources of “WordReference or Oxford”. So, the student inhibited his initial instinct to use Google Translate that demonstrated his true search behaviour and mimicked the teacher’s expectation. Such an initial and preliminary example in the class observation phase was not merely an anecdote. Other studies that have looked in depth at how students used Google Translate confirm this behaviour (Vazquez-Calvo & Cassany, 2017). In our interpretation of the present research, students usually (1) preferred Google Translate to other resources, (2) interpreted that Google Translate has more potential than other resources, because it is quicker in producing plausible results, and (3) were aware that the teachers’ official discourse underlined not to use machine translation instead of lexicographic resources. Students’ discourse formally followed this requirement, but their actual practices differed. However, future studies may wish to investigate these hypotheses further.

### *Using language technologies is ‘like cheating’*

In students’ exploration of other, less frequently used, language technologies, such as parsers, their interactions with each other revealed an emerging concern about their potential impact on personal performance/learning success. The following extract refers to an instance revealed during observation of the Catalan class:

It is a class to practice morphological and syntactical tree analysis. Some students ask if they can use the computer and the teacher accepts, suggesting they can present their analyses on PowerPoint. The teacher also points out: “Otherwise, do it on paper as you should.” While doing the activity, some student exclaims aloud: “Vincent (pseudonym) has just found some software to make the analysis.” The student who found this new resource tells me he searched ‘morphological analysis’ (in Catalan) on Google. This gives out the Internostrum parser. Only the researcher and some students around these two students can hear this new finding.

Excerpt (ii) from the observation diary (School A, session 3, Catalan).

The student who finds this new resource and his classmate explored the resource actively and critically, concluding it could only contribute to the morphological analysis but not the syntactical one. Another student sitting close-by (who was known to have a better academic performance) murmured the following comment about using the parser:

“The teacher did not ask us to use it [ . . . ], it is as though you cheated”.

Excerpt (iii) from the observation diary (Quote from female student, age 12, School B, sessions 3, Catalan).

From this observation, it can be argued that less frequently used language technologies is directed by the teacher, except for digitally-savvy students who search for resources on Google on a trial-error basis. Also, while it is positive that students allow themselves to explore affordances of language technologies in an autonomous manner, some refrain from doing that unless formally instructed by the teacher. This was because having a machine providing them with linguistic information was wrongly perceived as “cheating” and not a source of metalinguistic discussion and learning.

### *Frequency of use of language technologies*

Table 6 synthesizes students’ discourse in relation to how often they used a given language technology, how they conceptualized their preference, and how they perceived its potential and reliability. There was an indirect correlation between the frequency of use of machine translation (the most used) and its perceived reliability (the least reliable). All other language technologies were perceived as reliable by students, although they thought they had

varying degrees of potential, different affordances and contexts of use. Only the parser escaped this trend, as it was a new resource unknown to students and underexplored in the classroom (e.g. see Extracts ii and iii).

*Table 6: Resource selection, frequency of usage, preference, potential, and reliability according to students' discourse*

<b>Resource</b>	<b>Frequency</b>	<b>Preference</b>	<b>Potential</b>	<b>Reliability</b>
<i>Machine translation</i>	Almost always	Preferred by students	L1, L2 Faster Words Phrases	Not very reliable
<i>Dictionaries</i>	Very often	Preferred by students (WordReference) and teachers (Official dictionaries)	WordReference – L1, L2 indistinctively Official resources – L1, mostly Catalan Slower Words Some phrases	Reliable
<i>Spell and Grammar checkers</i>	Often	Preferred to hand in an assignment (embedded in word processor almost exclusively)	Spelling crosschecking	Reliable
<i>Wikipedia</i>	Occasionally	Preferred by students as a specialized dictionary	Terms	Reliable
<i>Search engines</i>	Occasionally	Preferred by students as a doubt dictionary	Disambiguation	Reliable
<i>Image search engines</i>	Rarely	Preferred by students as a visual dictionary	Disambiguation	Reliable
<i>Conjugators</i>	Rarely	Proposed by teachers on rare occasions	Only L1 Only for conjugation exercises	Reliable
<i>Parsers</i>	Rarely	Investigated by students by accident	Only L1 Only for parsing exercises	Not very reliable

Students used language technologies both inside and outside school. The way they accessed and learned language through these resources was self-directed, casuistic, and intuitive. Even though they preferred some language technologies to others, especially a preference for Google Translate, their discourse was sprinkled with divergent references to resource reliability. We identified three reasons for this uneven reference to reliability:

(1) Students tried to emulate teachers' discourse because teachers say it is unreliable and do not teach it: "But the teacher doesn't like it much because sometimes it goes wrong [in relation to Google Translate], I think that's why she doesn't teach it". (Male student, age 14, Quote 6)

(2) Students searched for linguistic information with language technologies uncritically (so reliability was not a topic in question):

Sometimes it's so obvious, because there are people who . . . early this year we composed a writing in Catalan, and then the teachers asked for a translation into English. Some people copy-pasted from translator [in relation to Google Translate] and it was so like 'Indian talk'. It was Indian-talk English, and so you couldn't make anything out of it. Well, I did one from anew. (Female student, age 12, Quote no. 7)

(3) Students underrated the competencies and skills Google Translate and other technologies required:

Researcher: Did teachers explain how to use those dictionaries and translators?

Boy: They presented them to us but not . . .

Girl: No, because there is no secret.

(Interaction between researcher and male student, age 14, and female student, age 14, Quote no. 8)

### *Perceptions on translation*

Combining teachers' perceptions and self-reported practices with students' practices and perceptions regarding language technologies in English, Catalan, and Spanish classrooms yielded conflicting views on translation as a plausible activity in language education. Both L1 and L2 classes limited the use of languages other than the language of instruction, but this disagreed with the natural flow of communication in a multilingual environment. Teachers' ideas regarding the exclusive use of the language of instruction (or English-L2 or Catalan or Spanish as L1s) were common. For instance, this excerpt reveals this "naturalistic approach" in English-L2 classes:

One student was drafting a brainstorm in Spanish for a composition in English. The teacher passes by and discovered he was using Spanish instead of English. The teacher discouraged the use of Spanish even if it was a first brainstorming. The student insisted on using Spanish: "You know I can work it out well in the end", he argued. The teacher reluctantly agreed.

Excerpt (iv) from the classroom observation diary (Classroom diary, session 2, English-L2).

With the statement "*You know I can work it out well in the end*", the student argued he would do everything within his power to compensate for using Spanish in the beginning of the writing task, even if that means using Google Translate. Alternatively, in the English classes, we witnessed some direct translation of words or fixed phrases (word-equivalent). Direct translation had pedagogical value for English teachers to give quick answers to students' doubts, yet we were unable to see any translation assignment in any of the language sessions. Inversely, students often solved their language doubts by resorting to translation by making use of machine translation software (as per Table 5) and other language technologies as previously explained.

When confronted with a linguistic doubt, students implicitly or explicitly posed the onomasiological question "*How do you express X [in L1] in language Y [another L1 or an L2]?*" to themselves. This question inextricably gives translation and pragmatic equivalence a pivotal role in the language learning process. Table 7 shows an example where a student used Google Translate in class to solve a lexical doubt. This search underscores how insecure the student is vis-à-vis the use of Google Translate, how she managed to use it best, and how she attempted to frame resulting linguistic information within her language doubt. In this case, the student used the Google Translate as a dictionary—the only use conceded by L2 teachers (Table 4). It provided the most frequent and statistically plausible translation for the word introduced (*guardería*: kindergarten). Secondly, she selected another option without further verification or crosschecking, not understanding the pragmatic information Google Translate gave out by providing a main translation option, and secondary choice with frequency bars. The selection of *playground* (English etymology) over *crèche* (French etymology) and "kindergarten" (German etymology) may be explained by the fact that the student was familiar

with the word *play* but not with the other lexical roots she had come across in the search, not even the French one (*guardería* in Spanish; *bressol* in Catalan).

*Table 7: Description of an observed search in the classroom*

<b>Doubt</b>	<b>Description</b>
<i>Guardería</i> <i>Kindergarten</i>	The student: - wants to say “a girl works at a kindergarten teaching infants” in English - opens GT and introduces <i>guardería</i> [kindergarten] - gets <i>kindergarten</i> as the first option - gets <i>crèche</i> and <i>playground</i> as alternatives - he selects <i>playground</i> for this text, and finally writes: “the girl work* in a playground with boys and girls”.

Had the student been provided with more training on using Google Translate, she could have considered that introducing more context or a full sentence would have yielded more definite and pragmatically adequate results with fewer clicks and searches. Thus, this example illustrates the student’s lack of training regarding Google Translate and her unfamiliarity with translation as a communicative task. Translation in all three language classes (English, Catalan, Spanish) was perceived as merely linguistic code-switching (selecting the most familiar option or cognate), rather than as a pragmatic and cultural mediation activity (selecting what is more pragmatically adequate in relation to the text and the context of communication).

## DISCUSSION

In our study, divergent metadiscourses emerged regarding language technologies and how L1 and L2 teachers perceived their potential applicability in language education (Table 4). While these divergent metadiscourses can be explained through diverse scholarly traditions in L1 and L2 pedagogies, L1 pedagogy (Catalan, Spanish) and L2 (English) pedagogy in Catalonia are theoretically underpinned by a communicative approach and the spirit of the *Common European Framework for Language* (Council of Europe, 2001, 2018). Although with a reduced sample from highly technological schools, our study demonstrates a strong reluctance and resistance in L1 pedagogy and teachers to incorporate language technologies to enhance their communicative approach. Such a reluctance manifests in discourse and practice which allows teachers to favour language technologies that both allow them to maintain control over the classroom (with no distractions from the Internet), and provide more philological and authoritative information (spell and grammar checkers, official dictionaries). The typology and nature of language technologies and teachers’ discourse also influenced how students made use of language technologies in their language learning and how they construed the potential and capabilities of available language technologies (see Tables 5 and 6, and Excerpts i and ii). Consequently, we could see there was a concurrent view on translation that hindered further exploration of language technologies and their current affordances. Both L1 and L2 language learning remained unconnected from contemporary multilingual and translanguaging approaches (see Excerpts iii and iv). We argue these results resonate with past research and provide plausible answers to our research questions.

Our data suggested that in relation to RQ1, *teachers did not teach language technologies and resources explicitly, with some differences between L1 and L2 teachers*. In the best-case scenario, they introduced a specific set of technologies they trusted (with an ideal language). To the teachers, official or institutional dictionaries were seen as the best choice of

language technologies. Teachers also lacked training when dealing with novel resources such as Google Translate (Quote 4). Lack of teacher training coupled with the fact that teachers did not believe in the reliability of most language technologies led us to think that language technologies were perceived as an interference in and a disruption to classroom dynamics (Quote 5). The least disruptive language technology for the teachers involved in the study were dictionaries, as teachers were familiar with them and could handle them appropriately (Quote 4). Similarly, studies on digital literacy identified interactive whiteboards or data-show and presentation software and PDF-like textbooks as the least disruptive digital artefacts that more conventional teachers employ (Vazquez-Calvo, 2016). In the specific case of textbooks, PDF-text books remain far from literature characterization of digital textbooks —with concepts like *mixability*, collaboration, ubiquity and serendipity, as seen in the international work of Rodriguez Regueira & Rodriguez Rodriguez (2015). In our study the most mixable (multilingual), collaborative (user feedback) and ubiquitous (laptop, cell phone) language technology seemed to be Google Translate, although no teacher was reported to give formal instruction on how to use it.

With these “less disruptive technologies” like dictionaries and spell and grammar checkers, teachers could keep old practices and roles within their classrooms. Being in a context where all information, linguistic and non-linguistic, is readily available online, language technologies should play a part in language education, although technological normalization sparks fear and reticence in literacy (Aliagas & Castellà, 2014) as well as CALL educational contexts (Bax, 2011). We think language technologies can help language education and classrooms move from a teacher-centred to a student-centred approach. Teachers would no longer hold the last answer but can prepare students to swiftly transition their language learning experiences across multiple contexts and languages, aided by digital technologies as they come, with a critical mind using them. To this end, we do not think that outsourcing the teaching of language technologies into the Technology module (Quote 1) is the best course of action. (See Reinhardt & Thorne, 2019, for updated recommendations on how to foster digital literacies, including the use of some language technologies like machine translation).

When our second research question (RQ2) is considered: *students employed a wider selection of language technologies, other than dictionaries*. In fact, we observed that the preferred technology was Google Translate followed by WordReference and Google used for language learning purposes (Table 5) as a corpus of potential parallel texts. These multilingual, multi-functional resources highlight students’ wide array of language needs, which are not covered by the dictionaries teachers promoted in their lessons. Although students’ practices opposed teachers’ discourses and preferences for official lexicographic materials, students’ discourse clearly echoed or tried to mirror that of their teachers. Students had internalized (1) that machine translation is, apparently, ‘not reliable’ (they are mostly unable to use it critically —pre-editing, post-editing, etc., (2) that they should resort to lexicographic material to offer adequate solutions, and (3) that an adequate solution cannot be found through translating — even if they keep translating all the time as part of the onomasiological process of learning a language. This uneven relationship between what students do and what they think teachers want them to do and also think can be problematic, because it can make actual, natural practices of students, which can be taken up as language learning opportunities, be invisible (Excerpt i).

In Catalonia, *there is also the perception that introducing technologies into schools automatically implies improvement of learning* (Prensky, 2010). In response to research question 3 (RQ3), this is an argument with many detractors already (Bennett & Maton, 2010; Bennett, Maton, & Kervin, 2008), but still the ideology is found to be pervasive in classrooms, including language classrooms (Marquès & Prats, 2013). In our study, even if teachers did present language technologies to students, only limited and superficial formal instruction on some language technologies was provided. This was because teachers felt language

technologies disrupted and altered their dynamics (Quote 4) or because they did not know how to integrate them (Quote 5). The lack of explicit training and instruction reinforced practices where teachers would hold the last answer to a linguistic doubt and students would solely rely on that answer, instead of finding their own means to solve doubts. Such a teacher-centred approach may miss opportunities for contextualized and situated language learning through digital technologies and opportunities for autonomous learning and student empowerment. It also overlooks the transversality of intercultural communicative skills and digital skills, including literacies and 21<sup>st</sup> century soft skills (Dooly & Thorne, 2018).

With teachers' reluctant or unappreciative dispositions toward language technologies, students assumed language technologies were '*easy to use*' (as they are readily accessible). They did not have clear guidelines and good practices, especially in the case of machine translation software — a language technology that was censored or ignored in the language classrooms but was the most frequently used by the students. Besides the lack of training, a possible reason why teachers did not formally instruct students may be that they presupposed that as *digital natives*, they were naturally digitally competent (with machine translation and other technologies) in contrast to themselves, as *digital immigrants*, being perceived as less competent or struggling technology users (better at paper-based or paper-like dictionaries) (White & Le Cornu, 2011). Therefore, we would suggest any 'one-laptop-per-child' program or similar educational initiative be accompanied by extensive teacher training, so teachers have the critical expertise to transfer the affordances and limitations of all technologies available into classrooms to enhanced learning.

Similarly, *the idea that translation is not a valid language activity in L1/L2 pedagogy may be grounded on the misconception that only one variant of language is adequate and no interlinguistic and intercultural transaction is possible* (Davies, 2003; Graddol, 2003) (see RQ3). Favouring a view on translation as more than mere linguistic code-switching requires a real sociocultural turn in the mindsets of teachers (González Piñeiro, Guillén Díaz, & Vez, 2010; Faye, 2009; Leonardi, 2010; Pym et al., 2013). This would involve welcoming concepts such as *pragmatic adequacy* (De Beaugrande & Dressler, 1981; Nord, 2009; Reiss & Vermeer, 1996), from where teachers and students can strive to offer multiple solutions, fit for context and text, by means of creativity, metalinguistic discussions and aid from language technologies. Introducing pragmatic adequacy and translation as a communicative activity into researching and teaching language technologies would require investigation of language technologies themselves, as "a part of a complex mesh of factors which go to making up any particular learning context" (O'Dowd, 2007, pp. 32–33). Although our study was a humble attempt in this direction, further inspiration for both teachers and researchers wishing to delve into this interdisciplinary topic of translation, language learning and the use of language technologies, may come from studies on fan translation and other fan practices and language learning in the wild (see Sauro, 2019; Vazquez-Calvo, 2020) — an exciting topic with much potential to bridge formal and informal language learning practices and digital uses.

## Limitations

This study encountered several limitations. Logistically, practice-based research is not only time-consuming and demanding, but also difficult to handle as schools in Catalonia, Spain, suffer the consequences of past and current financial constraints. Teachers are reluctant to have researchers in their classes, as the researcher is often seen as an external evaluator rather than someone to help them reflect on and potentially improve their teaching practice. This has had methodological implications, such as the low rate of voluntary teachers allowing the researchers to enter their classrooms. Additionally, the study is based on two schools. Results are therefore far from generalizable. We aspired to give some depiction of what happens in language learning in today's highly technological language classrooms with limited means

research-wise. Hopefully, our limited study inspires researchers and teachers to reflect on and investigate further other contexts with similar and large-scale studies.

## CONCLUSION

Online language resources and technologies are scaffolding tools in writing and reading online, yet there is still a long way to go until we see complete integration into language classrooms, at least, in Catalonia. There is a clear need to redefine the position of intercultural communication and translation, as well as the role technology and language technologies play within language education and classrooms. Open, social, multilingual, and multifunctional resources and technologies online are here to stay. Scholars from Corpus Linguistics have understood current boundaries in data-driven language learning have expanded the realm of corpora (Boulton, 2012). Hopefully, language educators can position themselves not only as a source of language input, but also as models of critical skills when dealing with language technologies. Teachers should ascertain that using language technologies requires technical and (meta)linguistic knowledge to attain certain levels of language awareness, self-assessment and autonomy (Lier, 2010; Van Lier, 2006), and that they are full of opportunities for situated language learning prompted by students' searches and doubts.

We already know students use language technologies prolifically, and that they do so with various levels of ability. Yet we know little on how they learn them informally, what factors influence why one student is more competent than another, and what type of recommendations and pedagogical guidelines they need to build up on their language information seeking competence. Future research studies may want to explore the interconnection between informal learning and digital literacy acquired at home and proficiency in certain language technologies, as well as individual factors determining competence and expertise in language information seeking skills, topics that are still needing attention.

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