Tema

TEACHING AND LEARNING FOREIGN LANGUAGES: INSIGHTS FROM CLASSROOM CORPUS RESEARCH

Un corpus de classe L2 est un ensemble d'enregistrements audio ou vidéo de leçons authentiques, qui ont été transcrits et préparés pour l'analyse. Un tel corpus donne un aperçu direct de la manière dont le programme L2 est vécu en classe en temps réel.

Dans cette contribution, nous présentons d'abord quelques exemples de recherches antérieures utilisant des corpus de classe, en soulignant la variété des perspectives qui peuvent les motiver. Nous décrivons ensuite le corpus «Apprendre le français» de leçons enseignées à de jeunes débutants anglophones, et les aperçus sur l'input, l'engagement et l'apprentissage de la L2 qui découlent de différentes analyses de ce corpus. En conclusion, nous discutons des contributions potentielles de la recherche sur les corpus de classe à notre compréhension de la pédagogie et à l'amélioration de la pratique.

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Introduction

Learner corpora are the main focus of this special issue. However in this contribution we turn our attention to a rather different though related type of corpus: the L2 classroom corpus.

A classroom corpus is a set of audio- or videorecordings of authentic L2 lessons, which have been transcribed and prepared for analysis. Such a corpus provides direct insight into how the L2 curriculum is delivered and experienced in the classroom in real time.

In this contribution we first present some examples of past research using classroom corpora, emphasising the variety of perspectives adopted. We then describe the 'Learning French' corpus of lessons taught to young Anglophone beginners, and the insights concerning input, engagement and L2 learning deriving from different analyses of this corpus. In conclusion we discuss the potential contributions of classroom corpus research to our understanding of pedagogy and the improvement of practice.

Approaches to classroom corpus research

An important strand of classroom corpus research uses conversation analysis (CA) to interpret interactions among classroom participants in a bottom-up fashion (e.g. Kunitz et al, 2021). CA research on classroom discourse has, for example, examined the L2 socialisation of young children (Cekaite, 2022), and the developing interactional competence of older classroom learners (Pekarek Doehler & Fasel Lauzon, 2015). A significant corpus in this tradition is the Multimedia Adult English Learner Corpus (MAELC), a collection of adult English as a Second Language (ESL) lessons videorecorded in Portland, USA (Reder et al., 2003). Researchers using this corpus have examined the development of students' linguistic and interactional competence. Through longitudinal case studies of

individual students, they have shown how this development is embodied in the routines of classroom life. For example, Hellermann (2008) described how students learn to initiate, manage and conclude interactions with peers during classroom small group activities. Eskildsen (2012) traced the development of L2 English negation by two students. He argued that the individuals' rather different learning pathways are shaped by their interactional experiences, which at times may consolidate non-standard forms (e.g. *you no* + Verb), and at other times disrupt them. Eskildsen and Wagner (2015) analysed students' gestures as well as speech to document their growing understanding and use of English prepositions with complex meanings (*under, across*).

Our second corpus example was created by Collins et al (2009). This corpus comprises audio- and videorecordings of Grade 6 English lessons for Francophone children (aged 11-12) in Quebec. For these younger learners, the classroom was effectively the only source of English input. The researchers recorded and transcribed ca. 40 hours of instructional input (the students' own speech was not the focus of their research). Their research took a usage-based perspective on L2 acquisition. According to usage-based theory, item frequency, lexical properties and perceptual saliency in L2 input are important factors influencing learner uptake. Collins et al examined the frequency and saliency in teacher talk of three English features: the simple past (regular *-ed*), the possessive determiners *his/her*, and progressive *-ing*. Previous studies have shown that *-ed* and *his/her* are difficult for French-speaking learners to acquire, while progressive *-ing* is more easily learned; could this apparent difference in learnability be explained by differences in their input profiles? Regarding raw frequency, it turned out that there was little difference between the three features; all were relatively infrequent in ongoing classroom input. However, progressive *-ing* occurred with a good variety of common lexical verbs and was always fully articulated. It was therefore judged to be salient both in terms of lexis and phonology. In contrast, regular simple *-ed* past (e.g. *asked*) was much rarer than irregular past forms (e.g. *made, did*), and occurred frequently with only four different verbs. When it did occur, the *-ed* ending was normally unstressed and frequently elided. The possessive determiners *his/her* occurred very rarely with semantic transparency (e.g. *his wife, her father*); they were rarely stressed, and almost always unaspirated (*he rode 'is bike*). Overall, these researchers claimed that the learnability differences between these elements could most likely be explained by their lexical properties and other aspects of saliency in L2 classroom input; their pedagogical recommendations focus on how best to promote saliency.

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Taken together, these two examples of classroom corpora illustrate the light shed on classroom input and interaction, and their potential for informing pedagogical strategies. It should be noted however that neither of these studies collected complementary data from the classroom learners in the form of standardised tests, so the only available evidence on L2 development was the classroom contributions of the learners themselves. The studies by Hellermann, Eskildsen and Wagner use qualitative analysis of student contributions over time to illustrate aspects of L2 development, while Collins et al. do not investigate students' actual learning of the items which were investigated. Clearly where classroom corpora can be complemented with test evidence, more powerful conclusions could be drawn about the relationship between classroom experience and L2 development.

The 'Learning French' (*LF*) corpus

The classroom corpus presented here comprises 33 L2 French lessons taught to a class of 26 children aged 7-8 in an English primary school. The data was collected as part of the longitudinal research project 'Learning French from ages

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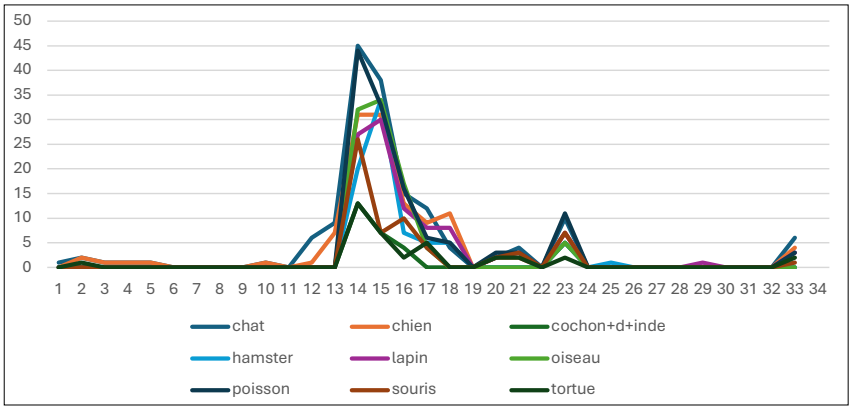

Figure 1

Distribution of animal vocabulary in *LF* corpus

This investigation of the vocabulary of classroom input raises key pedagogic issues. Firstly, how far the curriculum should be tailored specifically to the current interests of young learners, how far it should look ahead to future needs (e.g. as reflected in a reference corpus such as LLB); and secondly, how 'rich' and personalised classroom input should be, once curriculum topics have been selected.

5, 7 and 11: An investigation into starting ages, rates and routes of learning' (Myles, 2017). The project also repeatedly collected data on children's L2 development through an Elicited Imitation task, oral interviews and a Receptive Vocabulary Test (RVT). Data was also gathered on learners' L1 literacy and their working memory capacity. The learners were monolingual L1 English speakers, with no extramural contact with French; a pretest had established that the children knew no French at all before teaching began. The specialist teacher used an oracy-led approach, and spoke both English and French during instruction. The 33 lessons were audio- and videorecorded, and transcribed using CHAT/CLAN conventions (MacWhinney, 2000).

Exploitation of the corpus

Here we bring together a number of studies conducted using this corpus. The first study to be presented investigated lexical characteristics of the teacher's L2 input (for a fuller account of this study, see Mitchell & Myles, 2023). The second study investigated children's learning of French vocabulary, and its relationship with aspects of teacher input (Mitchell & Rule, 2022). The third study took a case study approach to explore children's classroom engagement, and its relationship with L2 development (Mitchell & Myles, 2019).

Teacher speech as L2 input

The teacher's speech was the prime source of L2 input for learners in this setting. To analyse her spoken French, we initially used the CLAN computer programs. This provided counts of word types (n = 653) and tokens (n = 44,316), which were also tagged for parts of speech. Token frequency was highest for function words including definite and indefinite articles, the first-person singular pronoun *je* [I] , the verbs *avoir* [to have] and *être* [to be], and the discourse marker *bien* [good, fine]. Many content words related to curriculum topics such as food and drink (60 word types), the body (27), animals (30), colours (15) etc. Within these thematic groups, word frequency was quite variable; typically a smaller cluster was the focus of intentional instruction and those words occurred with high frequency, while others might occur once or twice only. For example, among animal vocabulary, the items *chat, chien, lapin, poisson* [cat,

dog, rabbit, fish] occurred over 100 times each, while *canard, dinosaure* [duck, dinosaur] occurred only once. While function words were distributed relatively evenly through the entire corpus, the occurrence of content words was connected to lesson topics. For example, Figure 1 shows the distribution of selected animal names; these occurred with high frequency in Lessons 14-17, when the curriculum topic was 'pets', animal stories were read and animal songs were sung, but were rarely retrieved and re-practised later.

Next, the teacher's French vocabulary was compared with the vocabulary of two French reference corpora, created to support L2 acquisition. These corpora were the *Frequency Dictionary of French* by Lonsdale and Le Bras (*LLB*: 2009), and *FLELex*, from the University of Louvain (François et al., 2014; Pintard & François, 2020). The *LLB* dictionary presents the 5,000 commonest words in a large corpus of (adult) contemporary French, while *FLELex* provides wordlists related to the six proficiency levels of the Common European Framework of Reference for Languages (*CEFR*), derived from a corpus of French teaching materials. Our analysis explored the relationship between the teacher's vocabulary in the *LF* corpus, the first 2,000 words from *LLB*, and the wordlists for *CEFR* levels A1 and A2 from *FLELex* (which together total 1,925 words).

This analysis showed an overlap of just under 60 % of word types between the *LF* wordlist and the *LLB* 1-2k lists, and an overlap of just under 70 % with *FLELex* AI-A2. (Calculated on the basis of word tokens, the overlaps were much higher, over 80 % in both cases.) The differences derived partly from the curriculum, which gave much richer treatment to themes such as animal names (30 types in *LF*, 11 in *FLELex* A1-A2, and just two in *LLB* 1-2k), foods, etc. Words relating to the classroom environment and classroom management were also richer in *LF* (90+ words in LF, 60+ in each reference corpus); an important group of words relating to emotions were uncommon in *LLB* 1-2k, though more likely to be found in *FLELex* A1-A2 (see Table 1 for details).

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Item	**Word class**	**Frequency in *LF* input**	***LLB* band**	***FLELex* CEFR band**
aimer	v	345	1k	A1
ami	n	220	1k	A1
mal	adj/n	101	1k	A1
adorer	v	59	3k	A1
calin	n	57	Ø*	C2
coeur	n	53	1k	A1
bisou	n	43	Ø	A2
désirer	v	35	2k	A1
détester	v	30	3k	A1
beau	adj	26	1k	A1
parfait	adj	16	2k	A1
génial	adj	12	4k	A1
joli	adj	12	3k	A1
joyeux	adj	10	4k	A1
méchant	adj	9	4k	B1
anniversaire	n	9	3k	A1
barbant	adj	8	Ø	Ø
laid	adj	7	Ø	B1
amour	n	7	1k	A1
délicieux	adj	4	Ø	A1
mignon	adj	4	Ø	A2
fatigué	adj	3	4k	A1
triste	adj	3	2k	A1
embrasser	v	3	4k	A1
content	adj	2	2k	A1
gentil	adj	2	3k	A1
amuser	v	2	3k	A1
fatigué	adj	1	3k	A1
dégoutant	adj	1	Ø	C2
moche	adj	1	Ø	C1

*The symbol Ø denotes non-occurrence

Table 1
Emotion words in *LF* teacher talk compared with banding in reference corpora.

Item	Facility at Post-Test	Facility at Delayed Post-Test	LF input frequency	Number of lessons	Pedagogic activities	Multimodal support
poisson 'fish'	96.15	76.92	124	9	Focused oral practice Meta-comment Incidental use (song, film, story, game) Drawing and labelling	Iconic gesture (swimming) Image (flashcards, story) Text (image labels) Text (story)
glace 'ice cream'	92.31	69.23	35	5	Focused oral practice Incidental use (games, role play) Drawing and labelling	Image (flashcards, whiteboard images) Imitation foods Text (image labels)
frapper 'to clap'	69.23	73.08	37	10	Incidental use (song, game)	Action (handclapping)
parler 'to speak'	34.62	34.62	187	18	Incidental use (song, classroom management)	None
main 'hand'	30.77	19.23	160	20	Focused oral practice Incidental use (song, classroom management, game)	Actions (handclapping, hand raising) Pointing/touching own body

Table 2
Attributes of well-learned and poorly-learned words (after Mitchell & Rule, 2022)

Drivers for children's vocabulary learning

The children's L2 vocabulary development was assessed in the wider 'Learning French' project by the Receptive Vocabulary Test (RVT). This 50-item test included nouns and verbs only, was specially constructed to reflect the teacher's own vocabulary use, and was administered 3 times (Mid-programme, as a Post-test, and as a Delayed Post-test. Forty-four RVT items were drawn from the teacher's lexical inventory; the remaining 6 items were not heard in class. Ten items were judged to be cognates (e.g. *bébé* [baby]). The computer-based test had a multiple-choice format; children saw a selection of 4 images, heard the target word, and selected the matching image. At Post-test and Delayed Post-test, the group mean score was just over 50 % each time. However, of key interest to the study was the variation in learning of individual items. On the basis of their facility values, i.e. proportion correctly known, all words in the test were allocated to one of 3 categories: 'well-learned', 'moderately-learned', 'poorly-learned'.

To explore the drivers promoting learning of vocabulary, a quantitative approach was adopted first. This investigated the relationship between a word's facility value in RVT, showing how well it had been learned, its frequency in classroom L2 input, and its status as cognate or non-cognate. We know that input frequency is positively related to vocabulary learning as far as L2 reading is concerned, though there is less evidence for aural input (Peters, 2020). Cognate words are also generally easier to learn than non-cognates (e.g. Cobb, 2000). A statistical test was carried out on the Post-Test results which explored how far success in learning individual words could be attributed to frequency in teacher input and to cognate status. The results were significant and showed that these two variables in combination explained around one-third of the variation in learning success for the tested words[1].

To exploit the classroom corpus more fully, a qualitative approach was also adopted, to more closely examine a subset of five words which had proved easier/more difficult to learn, according to their facility values at Post-test and Delayed Post-test. All lessons in which the selected words occurred were identified, and all occasions of use were scrutinized on video to identify the activity types in which the words appeared, as well as any supporting gestures, images, objects, or printed text. Table 2 provides an overview of these five items, their facility values at Post-test and Delayed Post-test,

1 The test was a standard multiple regression with teacher input frequency and cognate status as predictor variables, and facility values on the Post-test as criterion variable. Results were significant and showed that the two variables in combination explained 35.3 % of the variance in test scores (R^2 = 0.353, adjusted R^2 = 0.323, p < 0.001).

	Bruno* (m)	Roseline (f)	Capucine (f)	Maxence (m)	Faustine (f)	Xavier (m)
Birth date	Sept 2001	Feb 2002	Feb 2002	Jan 2002	Aug 2002	May 2002
WM score (max 28)	24	20	18	15	9	6
L1 literacy score (max 9)	8	9	8	6	2	3
RVT Post-test/ Delayed Post-test score (max 50)	40/33	34/32	33/36	18/20	25/27	14/13
EI test score (max. 465)	391	349	289	262	282	244

*Names are pseudonyms

Table 3
Attainment of 6 case study children
(after Mitchell & Myles, 2019)

input frequency, distribution through the lesson sequence, related activities and multimodal support.

Table 2 shows that the best-learned words, *poisson* and *glace*, were the subject of focused oral practice. In addition, they were used incidentally and were supported by written text (including children's own label-writing) as well as by images and gestures. The less-well learned verbs *frapper* and *parler* were never the subject of focused practice, nor were they supported with writing or images. The worst-learned word, *main*, was, however, the subject of focused oral practice and associated with gestures (notably, hand-raising in response to the classroom command *levez la main*! [hands up!]). While each individual word may present a slightly different learning challenge, it seems that combinations of focused practice, multimodal support, and the chance to link oral and written forms can promote the learnability of L2 words, but do not guarantee it.

Learner engagement and L2 development

As mentioned earlier, the wider 'Learning French' project collected data on children's working memory, using a Non-Word Repetition test (Gathercole & Baddeley, 1996); the school provided assessments of their L1 literacy levels on a standard scale from 1-9. These factors were found to be significant predictors of children's L2 development as measured by the RVT, accounting for almost half the variance in learners' test scores (Mitchell & Rule, 2022). However, the classroom corpus allowed us to explore another potentially very important factor which could influence learner development, i.e. their ongoing engagement in classroom activities.

Learner engagement is central to classroom learning more generally; it is a complex construct, with behavioural, emotional, and cognitive dimensions (Fredricks, Blumenfeld & Paris, 2004). To study learner engagement, six case study children were selected, with high, mid, and low scores for L1 literacy and working memory. Table 3 provides details together with the scores achieved by these children on the RVT and the Elicited Imitation test.

Table 3 shows that the three children with the highest WM and L1 literacy scores also have the highest French test scores. However, the youngest child, Faustine, with very low WM and L1 literacy scores, considerably out-performs expectations on the French tests. So did classroom engagement have a role to play in moderating the influence of WM and L1 literacy?

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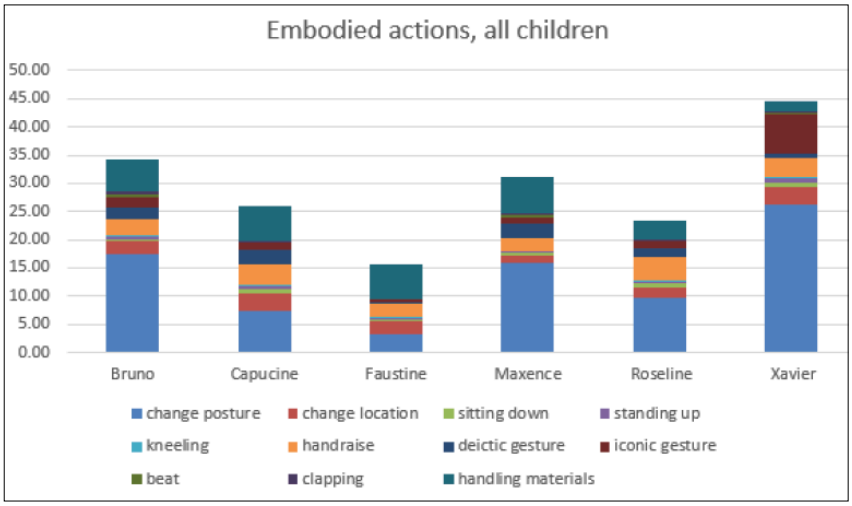

Figure 2
Bodily movement as behavioural (dis)engagement (after Mitchell & Myles, 2019)

To analyse classroom engagement, we tracked the children individually through a video sample of 100 minutes each, drawn from 5 spaced lessons. Using the computer program ELAN (Wittenburg et al., 2006) we developed a coding scheme to track behavioural engagement, including children's gaze and bodily movements. Analysis of children's gaze showed that the four highest achievers were attending either to the teacher or to the whiteboard or screen at least 70 % of the time. The two lowest achievers (Maxence, Xavier) were attending to these French input sources just over 60 % of the time. The children's bodily movements are summarized in Figure 2 (scale is % of observed time). Some movements such as hand-raising indicate engagement, but 'change posture' covers behaviours such as self-touching, shifting in seat, which likely indicate mild distraction. Figure 2 shows a noticeable gender difference, with boys generally more restless than girls; it seems that bodily restlessness up to quite a high level is not necessarily a barrier to learning (Bruno), but in the case of Xavier, may have passed a threshold beyond which learning is depressed.

Emotional and cognitive engagement were studied through qualitative analysis of critical incidents. All six children were well engaged emotionally, seeking teacher approval and taking part in games, competitions and other 'fun' activities. For all four higher achievers, incidents involving planning and reflection were observed and interpreted as indicators of cognitive engagement. For example, Bruno was observed privately rehearsing new vocabulary and associated gesture; Capucine volunteered a planned monologue of several utterances in French, following a holiday break; Faustine was seen organising materials (unasked) in response to teacher detailed instructions for a new activity. For the two lowest achievers, no such incidents were observed.

Discussion

This paper has illustrated some possibilities of research using classroom corpora. Corpus creation must follow relevant ethical guidance, which may be particularly strict regarding young learners (see e.g. BAAL, 2021; BERA, 2018). Thus for example, in the case of the *LF* corpus, only transcripts but not videos may be generally shared. However once created, and subjected to different types of analysis, many pedagogical implications can be drawn, and some examples are given below.

Firstly, the studies discussed here show the need for instructors to reflect on the most appropriate balance between explicit instruction and incidental exposure, for both grammar and vocabulary. Saliency is always crucial, and pedagogic strategies which improve the saliency of new material, including multimodal strategies, need to be developed and evaluated.

Secondly, instructors need to reflect on the choice of curriculum topics and implications for vocabulary instruction. To what extent should topics reflect the current interests of students or rather prepare them for future L2 communicative needs? What should the balance be between prescribed wordlists derived from reference corpora, and 'personalised' vocabulary? Given what is known about the importance of both frequency in input, and dispersed practice, for vocabulary acquisition, how 'rich' should topic-specific vocabulary be? These are complex questions and corpus findings point us to some extent in different directions. For example, Collins et al. suggest that a richer selection of (regular) verbs in teacher input would be helpful in promoting learning of English past tense morphology. On the other hand, some of the rich topic-related vocabulary

in the 'Learning French' corpus (e.g. for animals, and foods) was used only incidentally and never practised; it seems likely that working with more limited lists could promote learning more systematically. More classroom research is clearly needed here.

Finally, the direct study of learner engagement made possible in a video corpus reminds us firstly of the challenges of managing young learners' behavioural engagement. We also see the importance of emotional engagement through positive teacher encouragement and 'fun' activities. And lastly, but of greatest importance, we see the need to work actively with children to develop the qualities of cognitive engagement, such as the ability to think ahead, manage resources and plan their own learning, to learn with and from peers, or to envision longer term learning goals and develop the perseverance needed to attain them.

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