

Development of lexical richness among beginning learners of French as a foreign language

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Abstract

Vocabulary knowledge forms the basis of all the communicative skills and is a core component of language proficiency. In educational contexts in which target language input is limited, the acquisition of new vocabulary can be a challenging task for learners, and lexical development might be slow. This study explored the extent to which 14 upper-secondary students of French as a foreign language (FFL) in Norwegian schools showed signs of increased lexical richness in their written production over a period of approximately six months. The data were taken from the TRAWL (Tracking Written Learner Language) corpus, a digital collection of second and foreign-language learner texts. Two aspects of lexical richness were investigated: 1) lexical sophistication was measured using the MultiLingProfiler software for lexical frequency profiling and supplemented by a manual and more detailed analysis of five learners' texts; 2) lexical diversity was measured using D_Tools v.2.0 and word family counts. The data revealed that although many learners showed signs of using a somewhat more varied vocabulary over time, it is difficult to find proof of productive vocabulary development among beginning learners of FFL within such a limited period. The study suggests that finer-grained measures of analysis could be added to existing automated tools to make these tools more useful for beginner levels.

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Keywords

Lexical richness; learner corpus; French as a foreign language; written production.

1. Introduction

Vocabulary has long been recognized as the cornerstone of all language learning. Lewis (1993, p. 89) defined lexis as “the core or heart of language”, and Long and Richards (2009, p. xii) called it “the core component of all the language skills”. Vocabulary knowledge forms the basis of all communicative skills; there can be no successful reading, writing, speaking, or listening without vocabulary. It has been estimated, for example, that in order to capture the main content of a text, learners need to understand at least 80% of the words (Milton, 2015), and at least 95%–98% coverage might be needed for unassisted and enjoyable reading (Nation, 2001; 2006). For production skills, a broad and nuanced vocabulary is essential for learners in order to express their intended meaning. For second and foreign language learners, maintaining a steady acquisition of new words is crucial to language proficiency development.

Repetition has, unsurprisingly, been shown to play a crucial role in vocabulary learning (Nation, 2014). The more often learners encounter a word, the higher the chance they will recall that word and integrate it into their repertoire of linguistic resources. Vocabulary learning might therefore be more rapid in immersion settings than in educational settings in which target language (TL) input is limited (see, e.g., Batista & Horst, 2016).

French teaching in Norwegian schools represents a setting in which TL exposure is restricted to the classroom, i.e. a *foreign language setting* in Storch and Sato’s (2020) terms. The presence of French in Norwegian society is low, and learners need to actively seek TL input (e.g., online) if they want to be exposed to the TL outside school and in that way boost their incidental and intentional vocabulary learning. There are few if any opportunities for learners to practice the TL outside the classroom unless they have family or friends from the TL area. In such a setting, frequent repetition of words is often missing, and hence learners have limited opportunities to extend their vocabulary.

Learners’ receptive vocabulary (words that they recognize and know the meaning of) always surpasses their productive vocabulary (words that they are able to use in their own oral or written production), and receptive learning of a word always precedes its productive acquisition (Cobb &

Horst, 2015, p. 186). The current article addresses productive vocabulary, and thus the most challenging part, or later stage, of vocabulary learning. It sets out to explore the development of lexical richness in texts written by Norwegian upper-secondary learners of French. French as a foreign language (FFL) texts taken from the TRAWL (Tracking Written Learner Language) longitudinal corpus (Dirdal et al., 2022) were used to investigate learners' progress (or lack of progress) in the use of lexis as manifested in pieces of writing over time. The objective is to investigate the extent to which learners in an FFL setting develop their productive vocabulary from one school term to the next.

Traditionally, learner corpus research has used the native speaker as a norm or a baseline for comparison in an effort to define what characterizes learners' interlanguage at different stages compared with the native speaker norm (Gilquin, 2022). The current study adopts a different perspective, in that it does not see native speaker competence as the goal of language learning. Instead, learners are compared with themselves at different points in time during their learning process to see whether there are any signs of lexical progress in their written production. Such comparisons provide information about learners' development of competence over time and about individual trajectories.

2. The concept of lexical richness

Lexical richness is a multidimensional concept that encompasses several aspects of lexis use (Lisón & Ballier, 2018). Read (2000, pp. 200–201) identified four aspects of lexical richness: density, which refers to the proportion of lexical words in a text compared with function words; sophistication, which refers to the use of more or less frequent words; diversity, which relates to the variety of words used, i.e. the number of different words used; and lexical errors, which provide information about the learners' ability to put the words that they (partially) know into use.

The current article focuses on the aspects of sophistication and diversity. The idea behind the measure of lexical density is that a high percentage of lexical words indicates a high degree of lexical richness. However, this measure is not suitable for use with beginner learners, as many learners at lower levels tend to omit function words from their texts. Such behavior would lead to a high score on lexical density, whereas it is actually a sign of low performance (Miralpeix, 2006). The aspect of lexical errors is relevant for learner texts. It requires careful analyses that would merit an article on its own, and thus it is beyond the scope of this study.

The two aspects that are retained for this study (i.e., sophistication and diversity) measure related, but different, features of lexical richness. Lexical sophistication refers to the percentage of sophisticated or advanced words in a text (Lindqvist et al., 2013, p. 110). It can be measured using lexical frequency profiling tools, which were first developed for English by Laufer and Nation (1995) and made available through the online VocabProfile software on the Lextutor website developed by Cobb (<https://www.lextutor.ca/vp/>). This software was subsequently adapted to French by Goodfellow et al. (2002) and Cobb and Horst (2004) and later to oral French (and Italian) by Lindqvist et al. (2011, 2013) through the LOPP tool. The procedure is based on word frequency lists (derived from large corpora) and software that analyzes the texts in terms of the distribution of words from different frequency bands. Specifically, the software calculates the percentage of words from the 1000 most frequent words (the K1-band), the 1001–2000 most frequent words (the K2-band), etc. The idea is that learner texts at the beginner level will have a very high percentage of words from the first frequency band, as it is generally acknowledged that high-frequency words are acquired first in the language learning process (Milton, 2009). The use of words from lower-frequency bands is thus an indication of more advanced proficiency (Lindqvist, 2010; Ovtcharov et al., 2006; Vedder & Benigno, 2016).

While frequency undoubtedly plays a major role in vocabulary acquisition (Lindqvist et al., 2011), a reliance on frequency as the sole factor has been problematized in several studies. Milton (2009) and Lindqvist et al. (2013) emphasized that, in textbooks, vocabulary is often introduced according to different thematic fields (e.g., traveling, hobbies, and leisure time), which might entail a focus on rather specialized, low-frequent vocabulary. Learners might thus learn some low-frequency words at a very early stage of their learning process. In addition, cognates often belong to low-frequency bands but can nevertheless be considered easy to access and learn because of their similarity to words in the learners' L1.

Although the use of low-frequency words can be seen as a sign of advanced proficiency, it is important to remember that K1 coverage is naturally high in practically all types of texts, not least because the K1-band includes a large number of function words that occur frequently in all types of discourse. Cobb and Horst (2004) showed that in French newspaper texts of between 500 and 1000 words, the first K-band covered more than 77% of the words, and in shorter popular expository texts, K1 coverage was around 75%. In both genres, the first 2000 words covered about 85%. Lindqvist (2010) pointed out that K1 coverage might increase with text length since function words

tend to be repeated. K1 coverage is, of course, even higher in oral production than in written discourse: in a study by Ovtcharov et al. (2006), K1 coverage in native-speaker spoken discourse approached 84%.

Lexical diversity refers to how varied the vocabulary used in a text is, i.e., the relationship between types and tokens. For texts of similar length, the traditional type–token ratio (TTR) can be used, which is “the number of different words (types) in a text divided by the total number of words (tokens)” (Cobb & Horst, 2015, p. 192). However, since the TTR is sensitive to text length (frequent function words will necessarily be repeated in longer texts and thus lower the TTR score), more advanced measures that take text length into account are necessary when analyzing texts of different lengths. A plethora of such measures exist (see, e.g., Lissón & Ballier, 2018), among them the *D* measure (Meara & Miralpeix, 2017, based on Malvern et al., 2004), which is used in the current study. The idea behind measuring lexical diversity is that a varied vocabulary is a sign of high proficiency, whereas frequent repetitions of a limited range of words is typical for beginners.

Measuring only one of these two aspects (sophistication and diversity) will provide limited information about lexical richness. Measures of sophistication can say something about the variation *between* K-bands, but they do not say anything about how many different words *within* each K-band are used. In addition, low-frequency words (types) that are repeated by a learner numerous times (tokens) will inflate the sophistication score, as pointed out in Lindqvist (2010, p. 415). Conversely, the following famous example (originally from Meara & Bell, 2001 and cited in Cobb & Horst, 2015) nicely illustrates the limitations of lexical diversity measures:

The man saw the woman
 The bishop observed the actress
 The prelate glimpsed the wrench

These sentences would receive the same TTR (or similar) score, despite the obvious difference in their lexical complexity. Cobb and Horst (2015) therefore recommend using a combination of measures in order to determine lexical richness. Lexical profiling tools such as Vocabprofile (www.lextutor.ca/vp/) and MultilingProfiler (www.multilingprofiler.net/) provide both types of measures: 1) sophistication measures, in terms of the percentages of words from different K-bands, and 2) diversity measures, in terms of TTR and the number of word families (WF) used within each K-band.

3. Previous studies

Previous studies of French language learners' lexical development have focused on receptive as well as productive vocabulary. Since the receptive learning of a word is a prerequisite for its productive acquisition (Cobb & Horst, 2015), it is useful to look at studies that focused primarily on receptive vocabulary acquisition among learners of French before moving on to studies that investigated productive vocabulary.

In a series of studies, Milton (2006, 2008, 2015) showed that British students' acquisition of French vocabulary tended to be slow. Using the *X_Lex* test (a vocabulary recognition test), Milton (2006, 2015) estimated the receptive vocabulary size of UK learners of French to be around 800 words after five years of French studies (the General Certificate of Secondary Education [GCSE level], taken at age 16) and close to 2000 words after seven years of studies (the age 18 A-level exam). David (2008) found similar results with similar groups. Milton (2015) concluded that British learners of French had very limited vocabulary gains at the GCSE level (an estimated gain of 150 words per year, or less than 2 words per lesson) but made more rapid progress at the more advanced A-level (500 words per year). This last point was corroborated by Graham et al. (2008) and Richards et al. (2008), who investigated several aspects of vocabulary learning among more than a hundred students in an A-level French course in the UK. The researchers followed the students over two school terms and found substantial progress in both receptive vocabulary recognition and productive vocabulary sophistication and diversity.

Lindqvist (2018), using the same instrument as Milton (2006, 2008, 2015), examined the receptive vocabulary size of Swedish secondary learners of French (age 12–15) and compared the scores with those of Milton's learners. Although both groups learned FFL setting, the Swedish learners demonstrated a relatively rapid and substantial growth in vocabulary size throughout the years compared to the UK learners. Lindqvist (2018, 2020) suggested that the Swedish learners had an advantage because they had already acquired a first foreign language (L2 English), whereas the UK learners were learning French as their first foreign language and thus had no experience with foreign language learning.

Gruber and Tonkyn (2017) also found differences between different groups of learners of FFL. They conducted a cross-sectional study comparing British and German secondary school learners of French (age 14–16) with regard to vocabulary and syntactic knowledge. The two groups were at comparable levels of schooling, but the German group clearly outperformed the British group

both in terms of receptive vocabulary recognition and productive vocabulary diversity, as measured by the X_Lex test and the diversity of verb types in written production, respectively. The fact that German students learned vocabulary at a faster rate than their British peers even though both groups learnt French in a foreign language setting was explained by differences in textbook materials and teacher expectations.

Unsurprisingly, even larger differences have been found between learners in immersion and non-immersion settings. Batista and Horst (2016) compared the receptive vocabulary size of immigrant learners of French in Québec with Milton's learners. They found considerably higher scores among their immersion learners. The difference in educational setting was one of a number of factors that could explain the differences. The tests used in the two studies were not the same, and the intensity of the language programs differed. Although a number of reasons could explain the differences between the two groups, it is reasonable to assume that vocabulary acquisition is more rapid in settings where ample target language exposure is available.

Whereas receptive vocabulary is often measured using different types of vocabulary size tests, productive vocabulary is, as mentioned above, often measured through lexical frequency profiling (sophistication) and different measures of lexical variation (diversity), such as D. Studies adopting such measuring techniques with French learner language are limited in number but provide valuable insight into what these tools might tell us about the acquisition of French lexis and how they can be used.

Granfeldt (2006), Ovtcharov et al. (2006) and Lindqvist, 2010 all demonstrated that lexical frequency profiling through the French version of VocabProfile could be used to distinguish between groups with different proficiency levels. Granfeldt (2006) conducted a cross-sectional study of texts written by 40 Swedish learners of FFL (age 16–19) at two different proficiency levels, with the aim of identifying correlations between different automatic grammatical and lexical measures. The learners were divided into proficiency levels (developmental stages) based on a series of measures indicating morpho-syntactic competence, including the percentage of correctly conjugated lexical verbs. Granfeldt found significant differences between the two proficiency levels, in the sense that the more advanced group used more words from the K2-band than did the less advanced group. He also found that lexical sophistication was significantly correlated with the percentage of correctly conjugated lexical verbs, indicating that the more proficient learners were in verb conjugation, the less they limited themselves to words from the first K-band.

Ovtcharov et al. (2006) and Lindqvist (2010) found similar results for oral production. They investigated lexical richness in oral interviews with 48 adult Anglophone intermediate and advanced learners of French and 14 adult Swedophone advanced learners of French, respectively. Ovtcharov et al. (2006) compared the performance of learners from four different proficiency levels (intermediate-low, intermediate-high and advanced-low, advanced-high) and a control group of native speakers and found statistically significant differences between all learner groups when it came to use of words from the different K-bands: the advanced learners used significantly more words from the K2-band and above than did the intermediate learners. They did not, however, find significant differences between the most advanced learners and a group of native speakers. Lindqvist (2010) compared the performance of learners at different stages of the advanced level and a control group of native speakers. She found that the percentage of K1 coverage decreased with proficiency level while the proportion of low-frequency words increased, although only the difference between the least proficient group and the native speakers reached statistical significance. The lack of statistically significant differences between the two learner groups was not surprising, as the number of informants in each group was very low. Nevertheless, when analyzing the same data using their lexical profiling tool for oral language (LOPP), Lindqvist et al. (2011) also found statistically significant differences between the two learner groups. They concluded that frequency lists based on spoken sources should be used when analyzing oral learner language. In a later publication (Bardel et al. 2012), they further improved their LOPP tool by taking into account the factors of cognates and thematic vocabulary discussed above: low-frequent cognates and thematic words were reclassified according to teachers' perception of the words' level of difficulty. In this way, some cognates and thematic words were put in the same category as high-frequency words (basic vocabulary). Bardel et al. (2012) argued that such a tool was better fit for discriminating between different proficiency groups than a purely frequency-based tool.

Goodfellow et al. (2002) did not find any correlations between the lexical profiles as established by VocaProfile and the teachers' evaluations of their learners' French competence when investigating the lexical frequency profiles of British learners of French at a low-intermediate level. The authors suggested that the task type used could explain this result. Notably, the learners in Goodfellow et al.'s (2002) study were not as advanced as those in Lindqvist's (2010) and Ovtcharov et al.'s (2006) studies. It might be that lexical frequency profiling tools are less useful when it comes

to distinguishing between learners at relatively low levels. Horst and Collins' (2006) study of vocabulary development among 11–12-year-old francophone beginner learners of English supports this assumption. Using the English version of VocabProfile, they measured development in learners' lexical sophistication during an intensive 400-hours course. They did not find the expected increase in the use of advanced vocabulary: the learners did not use increased proportions of lexis from lower-frequency bands as the course progressed. However, *within* the 1K-band, the learners demonstrated progress in terms of the number of WF used, morpho-syntactic variation, and less reliance on cognates. The authors concluded that the lexical frequency profile gave only limited information about vocabulary development at beginner levels (see also Cobb & Horst, 2015, pp. 197–198), and that the frequency K-band measure was too broad to capture the development occurring at beginner levels.

As for measures of diversity, Treffers-Daller (2013) demonstrated that the D-measure can lead to unreliable results when used on non-lemmatized texts written in high-inflectional languages, such as French. She convincingly argued for the need to lemmatize French texts prior to running the D-analysis, since failing to do so would inflate the diversity scores. Marsden and David (2008) reported D-scores both on tokens and lemmas. They examined vocabulary use during semi-spontaneous oral production among beginner and low-intermediate learners of French and Spanish in the UK. They found few, if any, differences between the language groups, but there were significant differences between the two proficiency levels, as the low-intermediate learners displayed higher lexical diversity than their beginner level peers.

4. Research questions

In sum, the above studies indicate that the rate at which learners acquire vocabulary differs depending on a number of factors, such as course type and course level, curriculum design, textbook material, teacher expectations, previous language learning experiences, and educational context. It seems that vocabulary gains in French might occur at a relatively slow pace in some settings, especially for lower secondary school learners at beginner levels who learn French as their first foreign language in a setting with limited out-of-school TL exposure (Milton, 2006, 2008, 2015). Vocabulary gains seem to be more rapid among upper secondary school students and among learners who have already studied a foreign language (Graham et al., 2008; Richards et al., 2008; Lindqvist, 2018). The learners in the current study are upper secondary students (age 16–18) and have

already learned English, so even though the investigated period is short (approximately six months), one might expect to see some development. The current study is, to the best of my knowledge, the first to investigate the development of productive vocabulary in French among Norwegian secondary school students. It seeks to determine the extent to which these learners demonstrate measurable progress in lexical richness in written production over a six-month period. More specifically, two research questions are investigated:

RQ1 Do the learners use an increasingly sophisticated lexis during the examined period?

RQ 2 Do the learners use an increasingly varied lexis during the examined period?

5. Context of study and participants

This study used data from FFL learners in their second year of upper secondary school in Norway (ages 16–18). These learners had studied the language for three years in lower secondary school before continuing their studies at the upper secondary level. They were thus in their fifth year of French learning. At this stage, students are expected to be working at CEFR-level A2 (Norwegian Directorate of Education and Training, 2020). When starting their second year of upper secondary, they have received 335 hours of French teaching (222 in lower secondary school and 113 in the first year of upper secondary). In the course of the second year in upper secondary, they receive another 112 hours of French teaching, totaling 447 hours (Norwegian Directorate of Education and Training, 2006).

Although the curriculum is based on principles of communicative language learning, research has shown that TL use in FFL lessons in Norwegian schools can be very limited (Vold & Brkan, 2020; Vold, 2022; Heimark, 2013). Even in classes in which the teacher makes extensive use of the TL, the learners generally receive little TL input given the limited exposure outside school hours.

6. Data collection and material

The data were taken from the TRAWL corpus, a digital collection of second and foreign language learner texts written by learners in Norwegian schools (cf. Dirdal et al., 2022). The TRAWL researchers collected naturally occurring written assignments among primary and secondary school students in different geographical regions. Participants were not asked to perform specific writing

tasks; instead, they were encouraged to share the assignments and texts that they, in any case, would produce. Questionnaires regarding students' language backgrounds were collected along with the texts. Teachers and students who agreed to join signed written consent forms. The collection and compilation of the TRAWL corpus followed national guidelines for research ethics (NESH, 2016) and were approved by the Norwegian Centre for Research Data.

Data for the present study were taken from the French subcorpus of texts from upper secondary schools. At the time of data analysis, French texts from six upper secondary schools had been integrated into the digital corpus and prepared for analysis. In two of these schools, which had French classes with 17 and 14 students respectively, nearly all students had handed in texts distributed over the school year, and the assignments were comparable in terms of the level of difficulty, genre, criteria and writing context, thus making comparisons across different points in time possible (see Table 1). These two schools were therefore selected for the current study. All the selected assignments were written as tests at school, which implies that the students did not receive any help in the writing process. Most often, the tests also contained other short tasks in addition to the composition task. The time available for the entire test was the same across the three tasks.

Meunier (2015) suggests that at least three points of data collection are necessary for a longitudinal study. The assignments were collected at three time points during the school year: one in the latter part of the first term (T1) and two during the second term (T2 and T3). However, the time lapses between the assignments were uneven, as can be seen in Table 1. In school 1, there were five months between the first and second data collection points (T1 and T2), while there were only two weeks between the second and the third data collection points (T2 and T3). In school 2, there were four months between T1 and T2 and two months between T2 and T3. The time lapse between T2 and T3 in school 1 is too short to allow for any conclusions to be drawn about development between T2 and T3. Nevertheless, the second point of data collection serves as a "checkpoint" between T1 and T3, strengthening or weakening the signs of development observed from the first to the third assignment.

In both schools, the texts were collected over a period of approximately six months. During this period, the students would have received approximately 60 hours of French teaching between T1 and T3.

Table 1 presents an overview of the data material for each of the schools.

Table 1: Overview of the assignment tasks, date of submission, and required number of words from each school

School 1			
Task code	Date	Assignment	Required no of words
T1 (CINE)	Dec. 9, 2016	A choice between three assignments related to cinema and films: 1) a dialogue between two friends discussing films; 2) a text about a movie star's day at the Cannes film festival; 3) a text explaining the importance of film to understanding French society	N/A
T2 (MAIN)	May 8, 2017	A choice between three assignments related to pickpocketing: 1) a text from a thief explaining his actions; 2) a continuation of a story about a theft; 3) a description of a photo including thoughts on what is possibly happening in the photo and on the presence of the police in the streets.	N/A
T3 (BANL)	May 23, 2017	Three questions related to life in the suburbs of Paris	N/A
School 2			
Task code	Date	Assignment	Required no of words
T1 (MONT)	Nov. 01, 2016	Write a letter to a friend explaining what you plan to do as an exchange student in Canada.	200
T2 (SYMB)	Feb 28, 2017	A choice between three assignments related to French history: 1) a letter to Jeanne d'Arc; 2) a narrative text describing a visit to Versailles under Louis XIV; 3) a personal reflective text on important French historical events	250
T3 (LYCE)	April 26, 2017	A choice between two tasks related to school life in France: 1) a text about a young Norwegian spending a year in France; 2) a descriptive text based on a picture	300

Studies of naturally occurring writing as opposed to texts written in response to researchers' prompts have the advantage of being close to reality and thus potentially useful and relevant for classroom teachers. However, there are also disadvantages, particularly the fact that few factors can be controlled. For example, in the current study, while the three overall tasks are comparable, they might not be so for each individual learner, as the learners have options within each task and must distribute their time between the subtasks. Most of the text types that the learners could choose

between were comparable, with the exception of the dialogue option in T1 in school 1. Dialogues display a different pattern of lexical richness than descriptive and narrative texts. For example, in a written everyday dialogue, the names of the speakers will be repeated for each utterance, and one would not expect a sophisticated vocabulary since it is an oral genre. For this reason, I excluded from the analysis texts from participants who had chosen the dialogue option in T1 (n=9). A few participants had written texts of considerably different lengths, among which the shortest texts were cut in the middle of a sentence. These participants were also excluded from the analysis because I took this behavior to be a clear sign that the learner did not have time to finish his or her text. Finally, learners who wrote texts of less than 50 words were excluded. Texts of this length cannot be analyzed using D_Tools (Meara & Miralpeix, 2017), and there seems to be little point in analyzing lexical sophistication for such short texts.

After these exclusion criteria had been applied, texts from 14 learners – five in school 1 and nine in school 2 – were retained for further analysis. Two of these learners (211 and 214) had an L1 other than Norwegian. Table 2 provides an overview of the material selected for analysis.

Table 2: Overview of analyzed material

School 1: Five students	
Task code	Total number of words
T1 (CINE)	1293
T2 (MAIN)	1206
T3 (BANL)	1494
Total School 1	3993
School 2: Nine students	
Task code	Total number of words
T1 (MONT)	1779
T2 (SYMB)	2219
T3 (LYCE)	3008
Total School 2	7006
Total corpus size	10,999

7. Data analysis

7.1 Instruments

Lexical sophistication was measured using the MultiLingProfiler, a lexical profiling tool recently developed by the National Centre for Excellence for Language Pedagogy (NCELP) at the University of York (Finlayson et al., 2021). Like VocabProfile, which was used in several previous studies of French learner language, MultiLingProfiler immediately shows what percentage of the words in a text fall within and outside a certain frequency band. The source list is the most recent and most comprehensive frequency dictionary that exists for French, namely Lonsdale and Le Bras' (2009) *French Frequency Dictionary*¹, which is based on a large corpus of 23 million words taken from a wide range of written and oral sources within various genres. The most recent version of VocabProfile (2013) is also based on this list² (Cobb, n.d.). The previous studies cited above used an earlier version of the software that was based on a corpus of newspaper texts from 1998 compiled by Verlinde and Selva (2001) and thus on a narrower selection of discourse types. Thus, comparisons between the current and previous studies would be challenging even if I used VocabProfile. I opted for MultiLingProfiler in the current study because this software is available also in Spanish and German, which allows for comparisons across the different subcorpora in the TRAWL corpus. However, even though MultiLingProfiler was used as the primary tool, I used VocabProfile to further identify loan words and low-frequency words above K5 (see details below), as MultiLingProfiler only includes words up to and including K-band 5, classifying all words above K5 as off-list, whereas VocabProfile includes words up to and including K-band 25.

In order to investigate lexical richness within the K1-band, I include the number of WF used within the first K-band in the analysis. This number is automatically provided by the software. In addition, I selected four students for a more detailed analysis. I used Lonsdale and Le Bras' (2009) *French Frequency Dictionary* with these students' texts to manually classify all K1 words into C-

¹ This source list uses lemmas rather than word families as base units. A lemma is a base word plus inflections that do not alter the part of speech (*adopter, adoptez, adopté*), whereas a word family also includes derivations that alter the part of speech (*adopter, etc.*, but also *adoption*).

² There seem to be some inconsistencies, though. For example, “commun” is identified by VocabProfile as a K2-word and “lumière” as a K1 word, although in the Lonsdale and Le Bras (2009) list it is the other way around (“commun” K1, “lumière” K2). Such inconsistencies may have occurred when the lemmas of the Lonsdale & Le Bras list were adapted for the Vocabprofile software (Cobb, Sep. 2022, personal communication).

bands (bands of hundred words) in order to examine whether the students used increasingly advanced vocabulary from within the most frequent 1000 words.

Lexical diversity was measured using Meara and Miralpeix D_Tools v2.0 (Meara & Miralpeix, 2017). D_Tools v 2.0 is a freely available online version of Malvern and Richards *vocd* statistics (Malvern et al., 2004). Unlike the traditional TTR that is available in the lexical profiling tools, D controls for text length, thus providing a more valid measure of lexical diversity. D_Tools v2.0 is available from the Lognostics webpage (<https://www.lognostics.co.uk/>).

7.2 Preparation of the material

When analyzing learner language, a certain amount of text editing is necessary before using automatic analyses. I edited the learners' texts as follows:

- Spelling errors were corrected so that the MultiLingProfiler tool could detect and identify the words the learner meant to write. Misspelled words would otherwise be classified as off-list, which would distort the percentage of words from the different K-bands. The D_Tool would count misspelled words as types of their own, thus inflating the D-score.
- Other error types (word choice, word order, conjugation and agreement errors, etc.) were as a main rule not corrected. However, some creative verb forms that were easily recognizable, such as *apprendu* for *appris* and *découvris* for *découvert*, were corrected in order not to be classified as off-list and give an unreliable impression of sophistication.
- Invented words that were not immediately recognizable were eliminated before the analysis, again in order not to inflate the number of off-list words. One example is “vasai” in “Je vasai visite la ville Québec”, where it was not clear whether “vasai” was a creative form of *aller*, of *faire*, or yet another word. The procedure is not entirely unproblematic, because eliminating an invented item means that there will be something missing from the learner's text. On the other hand, the number of unrecognizable, invented words in each text was very limited, thus reducing the consequences of deleting these items.

- Proper nouns were added to the K1 word list in MultiLingProfiler, using the “extended list” tool. This procedure parallels the principles of VocabProfile, which automatically detects proper nouns and classifies them by default as K1 words. Before running D_Tool v2.0, proper nouns that consisted of several parts (e.g., Julia Roberts and Jeanne d’Arc) were connected using an underscore (e.g., Julia_Roberts), as recommended in the D manual. Thus, two-part proper nouns were counted as a single unit.

- Loan words that were not identified by VocabProfile as part of the French language (K-band 1–25) were added to the K1 list in the same way as proper nouns. Loan words that were recognized by the VocabProfile software were kept as they were. Accordingly, words such as *rafting*, *cool* and *fast food* were added to the extended K1 list since VocabProfile classified them as off-list, whereas words such as *ghetto* and *sandwich* were classified as “above K5” since VocabProfile placed them in K9 and K7, respectively.

- Before running the D_Tool v2.0, the learner texts were lemmatized, following the procedures detailed in Treffers-Daller (2013). This included changing all verb forms to the infinitive form and all inflected forms of nouns, adjectives and determiners to the base form (e.g., *garçons* → *garçon*; *grande* → *grand*, *l’, la* and *les* → *le*).

8. Findings

To answer the question of whether the learners used a more sophisticated and varied lexis over the six-month period, I now turn to the results of the lexical sophistication analysis and the lexical diversity analysis. I will briefly comment on the scores at the group level before turning to individual scores.

Tables 3 and 4 provide the mean word numbers for each assignment and the overall mean scores from the output of the MultiLingProfiler³ and the D_Tool v2.0 for schools 1 and 2, respectively. If we compare the total scores for the two schools, we see that in each school the students have, on average, written a similar number of words (799 vs. 778), and the percentages for each K-band are also very similar. For each of the groups, words from K1 make up more than 85% of the texts.

³ MultiLingProfiler (and VocabProfile) gives the results in cumulative percentages. For ease of reading, I use percentages of words belonging to each K-band instead.

While text length and sophistication are similar across the two groups, the students in school 2 have a higher D-score at group level than the students in school 1 (39.2 vs 32.5). Although they do not have a more sophisticated vocabulary than students in school 1, they seem to vary their vocabulary more.

There are no signs of development at the group level for sophistication or diversity. Table 4 shows that, on average, 81% of the words used in the T1 assignment by students in school 2 were from the first K-band, while the corresponding number for T3 was 88%, indicating an apparent decline in sophistication at the group level (see discussion below). The pattern is similar in Table 3 for school 1, although less salient. Additionally, with regard to diversity, the average D-score drops from T1 to T3 in both schools.

Table 3: Mean word numbers and mean scores for lexical sophistication (K1-5) and diversity (D) for school 1

Text	Words	% K1	% K2	% K3	% K4	% K5	D
T1: CINE	259	82.6	6.3	5.0	1.5	1.5	34.2
T2: MAIN	241	85.9	7.0	2.3	1.4	0.8	31.6
T3: BANL	299	87.2	4.3	4.6	0.8	1.1	31.7
Total	799	85.3	5.8	3.9	1.3	0.7	32.5

Table 4: Mean word numbers and mean scores for lexical sophistication (K1-5) and diversity (D) for school 2

Text	Words	% K1	% K2	% K3	% K4	% K5	D
T1: MONT	198	81.0	6.3	3.0	0.8	1.9	40.8
T2: SYMB	247	87.0	6.5	2.0	1.7	0.4	37.8
T3: LYCE	334	88.3	4.5	2.9	0.7	0.7	39.0
Total	778	85.5	5.7	2.7	1.0	1.0	39.2

Scores at the group level give a first impression, but since the number of participants is so limited, they do not provide much information alone. Tables 5 and 6 detail the scores for each individual learner in each school. The first two columns in Tables 5 and 6 list the student and task codes, respectively. The third column gives the number of words in the text. The percentages of words from different K-bands are presented in columns 4–8, while the percentage of off-list words (above K5) is given in column 9. This percentage reflects real, low-frequency words, as the material was

edited to avoid inflation of off-list words due to spelling errors and creative forms. Similarly, if the percentage in column 4 (K1) is low, it is a genuine sign of more advanced vocabulary and is not caused by spelling errors or invented word forms. The D-score is presented in the tenth column, while column 11 gives the number of WF used within the first K-band. Proper names and loan words that were added as described above are not included in the number of WF used within the first K-band.

Table 5: Scores for each individual learner on each assignment, school 1

Stud.	Text	No of words	% K1	% K2	% K3	% K4	% K5	Off-list	D ⁴	WF in K1
180	T1 CINE	343	77.0	8.7	5.6	2.6	1.7	4.4	37.8	70
	T2 MAIN	248	90.7	4.1	1.2	1.0	0.2	2.8	31.2	70
	T3 BANL	168	85.7	4.2	7.1	0.6	1.2	1.2	27.9	47
181	T1 CINE	226	85.4	6.2	6.2	0.0	0.9	1.3	27.1	61
	T2 MAIN	230	84.0	8.6	2.6	1.8	0.4	2.6	23.6	49
	T3 BANL	291	84.0	6.4	4.8	1.1	1.7	2.0	31.9	73
182	T1 CINE	270	85.6	4.8	2.6	0.7	3.0	3.3	31.8	75
	T2 MAIN	390	86.7	4.1	5.2	2.0	0.7	1.3	39.2	103
	T3 BANL	365	92.3	2.5	2.2	0.5	0.9	1.6	31.3	89
187	T1 CINE	276	77.5	6.5	6.6	3.6	1.5	4.3	35.2	64
	T2 MAIN	252	84.5	8.8	2.7	1.0	0.2	2.8	34.4	70
	T3 BANL	493	86.6	3.9	3.8	1.2	0.5	4.0	34.7	105
191	T1 CINE	178	87.6	5.1	3.9	0.6	0.6	2.2	38.9	58
	T2 MAIN	86	83.7	9.3	0.0	1.2	2.3	3.5	29.4	36
	T3 BANL	177	87.6	4.4	5.0	0.2	2.2	0.6	32.9	57

Based on Table 5, it is clear that no joint pattern of development can be identified among the five students in school 1. For student 180, for example, sophistication and diversity both decrease, as does text length: while only 77% of the words in T1 are from K1, more than 85% of the words in T3 are. The D-score decreases from 37.8 in T1 to 27.9 in T3, and text length decreases from 343 words in T1 to 168 words in T3. For student 181, the pattern is opposite although less clear: text

⁴ According to Kouizumi & In'nami (2012), D should be interpreted with caution for texts of less than 200 words.

length slightly increases (from 226 words in T1 to 291 in T3), and there is a weak tendency towards a slightly more sophisticated vocabulary in that the student relies somewhat less on K1 vocabulary in T2 and T3 (both 84%) than in T1 (85.4%), and instead uses a few more words from above the K5 band, such as *atterrissage* (K7), *patrouille* (K9), and *argot* (K14). Diversity also increases from T1 to T3 for this student (D-score from 27.1 to 31.9), but not from T1 to T2 (D-score from 27.1 to 23.6), indicating that the progress might not be linear. More points of data collection would be needed to ascertain whether the observed increase in diversity reflects actual progress or is simply the result of sporadic variation. For student 182 and student 187, sophistication seems to decrease somewhat (K1 reliance increases from 85.7% in T1 to 92.3% in T3 for 182 and from 77.5 % in T1 to 86.5 % in T3 for 187), whereas the lexical diversity as measured by the D-score is relatively stable (31–32 for 182 and 34–35 for 187), apart from a higher score (39) in T2 for student 182. Meanwhile, student 191 shows relatively stable scores for sophistication (87.6% in both T1 and T3), while diversity seems to decrease slightly (from 38.9 in T1 to 32.9 in T3).

The number of WF used within K1 is a measure of diversity within the K1-band, and thus it is not surprising to see that these numbers reflect the D-score for the entire text, as most of the text consists of K1 words. The number of WF also suggests progress for learner 181 (it increases from 61 in T1 to 73 in T3) and a setback for learner 180 (the number of WF in K1 decreases from 70 in T1 to 47 in T3). However, learners 182 and 187, who both have relatively stable D-scores, use considerably more K1 WF in T2 and T3 than in T1: 182 increases from 75 WF in T1 to 103 WF in T2 to 89 in T3, while the corresponding numbers for 187 are 64, 70 and 105. It thus seems that these learners have acquired a more varied vocabulary within the first K-band. For learner 191, the number of K1 WF (58, 36, 57) seems rather stable if we ignore T2, which is short compared with T1 and T3.

Summing up the findings from school 1, no obvious signs of progress can be detected at the group level. At the individual level, only one student (181) shows some signs of progress when it comes to both lexical sophistication and diversity. Two students (182 and 187) show increased diversity within the K1-band.

Table 6: Scores for each individual learner on each assignment, school 2

Stud.	Text	No of words	% K1	% K2	% K3	% K4	% K5	Off-list	D	WF in K1
208	T1 MONT	204	79.9	9.8	0.5	1.5	2.9	5.4	32.5	51
	T2 SYMB	287	84.7	5.6	1.7	4.3	0.6	1.1	28.7	67
	T3 LYCE	313	82.6	5.5	5.5	0.9	0.7	4.8	46	85
209	T1 MONT	207	81.6	6.8	2.9	0.5	1.4	6.8	37.6	53
	T2 SYMB	259	83.8	8.9	2.2	1.6	0.8	2.7	33.1	56
	T3 LYCE	344	86.9	4.7	3.5	0.5	1.2	3.2	42.8	53
211	T1 MONT	79	84.8	5.1	1.2	2.6	1.2	5.1	30.3	32
	T2 SYMB	104	85.6	8.6	2.0	2.8	1.0	0.0	31.2	36
	T3 LYCE	214	92.1	5.1	1.9	0.0	0.4	0.5	30.1	57
212	T1 MONT	196	77.5	9.8	4.1	0.0	3.5	8.7	50.1	55
	T2 SYMB	191	89.0	6.8	1.6	0.5	0.0	2.1	43.3	68
	T3 LYCE	407	91.4	3.9	1.5	0.7	0.3	2.2	39.4	95
213	T1 MONT	265	83.8	3.8	2.6	0.8	0.7	8.3	45.0	59
	T2 SYMB	255	90.6	5.1	1.2	0.8	0.7	1.6	42.1	74
	T3 LYCE	391	91.8	4.4	1.2	0.3	0.0	2.3	37.6	95
214	T1 MONT	203	78.3	5.9	6.0	0.9	2.0	6.9	44.6	61
	T2 SYMB	282	88.3	4.6	2.5	1.1	0.0	3.5	38.5	75
	T3 LYCE	322	91.3	2.5	2.8	0.9	0.6	1.9	39.9	86
215	T1 MONT	202	81.2	4.4	5.0	1.0	1.0	7.4	35.1	57
	T2 SYMB	263	90.9	4.9	0.8	1.1	0.4	1.9	39.9	82
	T3 LYCE	340	89.1	3.3	2.9	0.3	1.5	2.9	42.2	92
216	T1 MONT	199	78.4	8.0	2.5	0.0	1.6	9.5	47.1	50
	T2 SYMB	225	86.2	6.2	4.0	1.8	0.0	1.8	50.8	77
	T3 LYCE	301	81.4	7.0	4.0	2.2	1.6	4.0	32.5	72
217	T1 MONT	224	83.5	6.7	2.2	1.4	1.7	4.5	44.9	59
	T2 SYMB	353	85.0	4.5	2.0	1.1	0.3	7.1	32.7	83
	T3 LYCE	376	88.3	4.2	2.7	0.3	0.5	4.0	41.0	82

For all students in school 2, T1 seems to include the most sophisticated vocabulary. This is probably due to the nature of the task. In T1, the students wrote about Canada and used a topic-relevant vocabulary, which included the use of low-frequency words, such as *motoneige*, *poutine* (Canadian

dish), *canoë*, *kayak* (all off-list), *hockey* (K6), and *escalade* (K7). Assignment T2 also facilitated a somewhat more sophisticated vocabulary than T3 because the students were asked to write about Jeanne d'Arc and French history, which entailed the use of low-frequency words, such as *fraternité* (K7), *bûcher* (K10), and *sorcellerie* (K12). Although not as numerous as in T1, these low-frequency words boost the sophistication scores for T2 in comparison with T3, when students were asked to write about being a student in French schools, thus, facilitating the use of more everyday language. Despite this difference between the tasks in T2 and T3, three of the nine students (208, 215, 216) showed signs of using a more sophisticated vocabulary in T3 than in T2, as K1 coverage decreases from T1 to T3 while the percentage of K5 and off-list words increases.

No trend can be detected at the group level for lexical diversity. Students 208, 209, and 215 show an increase in D-scores from T1 (D= 32.5; 37.6 and 35.1, respectively) to T3 (D=46.0; 42.8 and 42.2, respectively). Student 211 has a stable measure (D-score slightly above 30 in all three texts), while student 216's D-score goes up and down (from 47.1 in T1 to 50.8 in T2 before dropping to 32.5 in T3). The remaining four students (212, 213, 214, 217) show a pattern of slightly decreasing diversity (D-scores of 50.1; 45.0; 44.6 and 44.9 in T1, respectively, decreasing to 39.4; 37.6; 39.9 and 41.0 in T3, respectively). However, when looking at the number of WF within the K1-band, it becomes clear that all students apart from 209 use an increasing number of WF. Overall, this increasing number occurs along with an increase in text length and thus can be seen as a logical consequence of writing longer texts. However, the increase shows that the learners use more word types and do not simply repeat the same ones over again. Moreover, the number of WF within K1 also increases in cases when the text length does not, such as for learners 212 and 213 from T1 to T2. In these cases, T1 and T2 are almost identical in length (196 and 191 words, respectively, for student 212, and 265 and 255 words, respectively, for student 213), but the number of WF within K1 increases from 55 (T1) to 68 (T2) for 212 and from 59 (T1) to 74 (T2) for 213. It increases further to T3, when text length also increases.

To examine sophistication within the K1-band in more detail, I selected five learners who showed no sign of increased sophistication when looking at the K-bands but used an increasing number of WF from K1. In school 1, students 180 and 182 met these criteria. In school 2, most students fit the criteria, with the exception of student 209, who did not use an increasing number of WF from K1, and possibly student 216, who showed some sign of development in sophistication from T2 to T3. From the seven students in school 2 who clearly fit the criteria, I selected three who had increased their number of K1 WF to various degrees: student 212 to a large extent, with an

increase of 40 K1 WF from T1 to T3; student 208 to a medium extent, with an increase of 34 K1 WF from T1 to T3; and student 217 to a lesser extent, with an increase of 23 K1 WF from T1 to T3. As described in the methods section, I manually sorted all K1-band WF used by these students into C-bands using the frequency lists in Lonsdale and Le Bras (2009). For ease of reading, I have grouped them in two parts: C1–C5 (less sophisticated vocabulary) and C6–C10 (more sophisticated vocabulary). The results are presented in Table 7.

Table 7: Distribution of K1-band words among five selected learners

Student	Text	% C1–C5	% C6–C10
182	T1 CINE	81	19
	T2 MAIN	83	17
	T3 BANL	84	16
187	T1 CINE	80	20
	T2 MAIN	88	12
	T3 BANL	85	15
208	T1 MONT	87	13
	T2 SYMB	88	12
	T3 LYCE	77	23
212	T1 MONT	91	9
	T2 SYMB	81	19
	T3 LYCE	84	16
217	T1 MONT	84	16
	T2 SYMB	90	10
	T3 LYCE	88	12

Table 7 shows that the two students from school 1 (182 and 187) do not seem to use an increasingly sophisticated vocabulary within the K1-band, as the percentage of words from the upper part of the first K-band (i.e., C5–C10) actually drops from T1 to T3. Meanwhile, two students from school 2 (208 and 212) do use an increasing proportion of C5–C10 words from T1 to T3, whereas the proportion of C1–C5 words decreases. Their classmate, student 217, does not use an increasingly sophisticated vocabulary within the K1-band.

More data collection points would be necessary to establish systematic trends of development, but this exploratory investigation suggests that some students (208 and 212) are making progress when it comes to lexis sophistication, although this progress is not captured by lexical frequency profiling that uses the broad measure of K-bands. It is worth noting, however, that students 208 and 212, who show this progress, started out with a higher percentage of words in C1–C5 than the other students (87 and 91%, respectively, compared with 81 and 80%, respectively, for the students in school 1 and 84% for their classmate in school 2). It is reasonable to assume that it was easier for students 208 and 212 to make progress since they started out with a less sophisticated vocabulary.

9. Discussion

This small-scale study explored the extent to which upper secondary students of FFL in Norway showed signs of increased lexical richness in their written production over a period of approximately six months. Lexical sophistication was measured using software for lexical frequency profiling, which analyzes the text in terms of the percentage of words from different K-bands. The average K1-band coverage was approximately 85% in each class, which is a considerably higher percentage than the proportion of K1 words in authentic native speaker texts (Cobb & Horst, 2004). This finding is expected, as beginning learners naturally know fewer words than native speakers do and thus must rely on the limited number of words that they do know, which are often high-frequency words (though not exclusively; see Milton, 2009; Lindqvist et al., 2013). In fact, it is impressive that some learners have a K1 coverage of only 77–78% in some of their texts and a correspondingly increased percentage of words from other bands (mostly K2, but also lower-frequency bands; see Tables 5 and 6). This pattern approaches that of the native speaker texts analyzed in Cobb and Horst (2004).

The K-band analysis did not reveal any development, however. The texts with the lowest K1-band coverage are found in the T1 assignments and not among the T3 assignments. This should not be taken as a sign of decreasing lexis sophistication; more likely, it is a consequence of the task type and the vocabulary that it triggers. In particular, the T1 MONT task triggered thematic vocabulary. The use of words such as *motoneige*, *poutine*, *canoë*, *kayak*, *hockey*, and *escalade* illustrates the fact that textbooks and language classroom instruction do not exclusively focus on high-frequency words but also include low-frequency words linked to specific topics (Lindqvist et al.,

2013; Meara & Miralpeix 2017, p. 28; Milton, 2009). Although not all the students make use of this vocabulary, those who do achieve a higher lexis sophistication score.

The fact that the measure of sophistication using K-bands did not reveal any development is as expected for learners at this level. This finding is in line with those in Horst and Collins' (2006) study of beginner English language learners discussed above. Consequently, Cobb and Horst (2015) argued that K-bands are too broad of a measure to capture the development of beginning learners. Learners at this level mostly work with words within the first (and perhaps the second) K-band. It cannot be expected that they would use an increasing number of words from low-frequency bands. However, an in-depth analysis of the vocabulary used in five learners' texts revealed that two of the students showed signs of increased sophistication within the K1-band, in the sense that the percentage of words from the first five C-bands decreased while the percentage of words from C6–C10 increased from T1 to T3. These qualitative findings do not say anything about the progress patterns in each of the two classes, but they indicate that there might be more to learner lexis development than what automated analyses capture using K-bands.

Lexical diversity was measured using D for entire texts. Subsequently, diversity within the first K-band was further investigated by looking at the number of WF within this band. The D-measure did not reveal any overall trends, as there was individual variation among the students: some showed increased diversity from T1 to T3, whereas others had a stable measure or even a decrease in diversity. However, the WF count for the first K-band showed that all but three learners used an increasing number of WF from T1 to T3. The increase must be considered in connection with the fact that the text length also increased for most of the students. Nevertheless, this means that when the students were required to write longer texts (see Table 1), they employed more word types instead of relying on repetitive use of the words they had already used in previous writings.

The increase in length and in the number of WF (i.e., in tokens and types) might be a sign of development in productive vocabulary. Increased text length is in itself a sign of progress (Granföldt, 2006), and although the increased length was required in school 2 by the evaluation criteria, which demanded 50 more words for each task (see Table 1), many students wrote considerably more than what was required, especially in T3. Alternately, this pattern might also indicate that there was less time pressure with this test than with the others.

Apart from the increased text length (which was partly due to teacher requirements) and the increased number of WF from K1, there were few signs of development in lexical richness, especially when looking at the group as a whole. This observation can have a number of explanations. It is possible that the current study underestimated the time it takes for students to acquire a new vocabulary and broaden their lexical repertoire. There were only about 80 hours of French teaching and less than six months between T1 and T3. A longer period could have resulted in more solid findings. It could also be that the learners had in fact acquired new vocabulary, but that this was not yet reflected in the texts they wrote. If this is the case, it might be because the learners did not see the new vocabulary as relevant for the assignment at hand, or there may have been a gap between the knowledge and skills needed to use it: learners might know many words but be unable to use them in their own written production. Receptive vocabulary tests could be used to check the learners' progress in this field. However, there might also be a limited focus on vocabulary learning in FFL teaching in Norwegian schools. An analysis conducted in lower secondary schools in Norway showed that approximately 18 % of the teaching time was explicitly allocated to vocabulary learning (Vold, 2020), which was low compared to the amount of time allocated to grammar and writing. Indeed, this might seem quite low considering the crucial role that vocabulary acquisition has at this level of language learning. Naturally, there will also be incidental learning of words in addition to the explicit teaching focus.

There are certain important limitations to this study. The results are based on a limited number of learners and texts, and thus they should be confirmed through quantitative studies with larger groups and statistical measures and/or through qualitative studies with more data collection points and in-depth analyses over an extended time period. In addition, there are several relevant factors that a study of naturally occurring writing cannot control for. The tests were similar across all three data collection points with regard to the available time and criteria, but we do not know how the students experienced the time pressure and the difficulty of each test. However, even in a controlled study, it would be difficult to ensure that students found the different assignments equally demanding.

The aim of the current study was to investigate the extent to which learners in a FFL setting developed their productive vocabulary from one school term to the next. In sum, the distribution of words in K-bands and the D-measure did not show any development at the group level, but when looking into individual learners' results and WF within the first K-band, there was, despite the limited time period, a tendency among some students to use an increasingly advanced and varied

vocabulary from T1 to T3. Most of the students expanded their use of different WF from within the K1-band. They also wrote longer texts at the third point of data collection, even longer than required by the teacher and the test criteria.

10. Conclusion

Most previous research on the development of vocabulary in FFL has focused on advanced learners (Lindqvist, 2021). The current study adds to the scarce body of literature on the lexical development of beginning learners of French in the Nordic countries. The findings support Cobb and Horst's (2015) conclusion that K-bands are too broad to measure the development of lexical sophistication among beginner learners. Developers of lexical frequency profiling tools could consider adding narrower bands, such as bands of five hundred or even one hundred (C-bands). A more fine-grained division of frequency bands would make these tools more useful for teachers and researchers working with beginner-level learners.

The current study also illustrated some of the challenges with using naturally occurring data. Factors such as time constraints, genres, and topics are not controllable and might make comparisons across points in time and across groups difficult. At the same time, this type of data offers the most realistic picture of what happens in school. The data revealed that it is difficult, within a limited period of six months, to find proof of productive vocabulary learning among upper secondary students of FFL. An avenue for further research could be to use more data collection points and follow students over an extended period of time in order to identify more solid and systematic trends.

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