A contextual perspective on oral L2 fluency

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Abstract

This paper reports on a study investigating the impact of differences in the learning context on oral L2 fluency outcomes. The study specifically focuses on the effect of different levels of L1 and L2 *prominence* (as determined by their status, functions roles and domains of use) in the extracurricular context on the speed, breakdown and repair fluency of the L2 speech of German learners of English (ages 8-14). Controlled variation of L1 and L2 prominence is observed across 4 different authentic language learning contexts. The results demonstrate an effect of different levels of L2 prominence on L2 speed and breakdown fluency and grant support to a gradient operationalization of language prominence. We further suggest that L1 prominence is a relevant factor in the operationalization of context. The different dimensions of fluency (i.e., speed, breakdown and repair fluency) are affected differently by elements in the learning context, which confirms the multilayered approach to the construct.

Introduction

Following Atkinson (2002), the study reported in this paper views second language acquisition (SLA) as a *socio-cognitive* process. Thus, SLA is as much a matter of investigating the internal cognitive processes it entails as of examining the way in which external contextual factors may shape these processes and their linguistic outcomes. This study aims to contribute to the second aspect by investigating how elements in the learning context may affect the development of fluency in an L2.

Fluency is considered a crucial aspect of proficiency in a language, and is often an explicit goal of second/foreign language education. The development of L2 fluency is assumed to be particularly sensitive to contextual factors (Collentine & Freed 2004; Freed 1995a; Riggenbach 1991). For instance, popular belief holds that learning an L2 in a context where the language is used as a native language by a majority of speakers will lead to higher levels of fluency than learning the L2 in contexts where it has no further role or functions beyond the foreign language classroom (DeKeyser 2007a; Freed 1995b; Miller & Ginsberg 1995). However, this belief is not unequivocally born out by empirical research. For every study that has found a fluency advantage for learners in the first type of context there are studies that have not found such significant advantages or sometimes even advantages for learners in the second type of context (Collentine & Freed 2004; Freed 2008). Part of these mixed results, we argue, can be explained by the lack of consistency across studies in the way the relevant factors – context and fluency – have been conceptualised, defined and operationalised. This makes it hard to compare and generalize findings and to get a clearer picture of the effects of contextual variation on various aspects of L2 proficiency development.

Context

The SLA literature is rife with terms referring to the social or contextual aspects of L2 acquisition, including *context, environment, situation, milieu, setting, locale, scene, arena* (see also Barkhuizen, 2004). But perhaps more problematic than this terminological proliferation is the failure, in many studies on contextual aspects of SLA, to clearly define the construct under study. What is meant by context, setting, environment …, really?

In most studies, context is not explicitly defined but, rather, directly operationalized in terms of macro-level concepts. One such popular operationalisation is the distinction between natural(istic) and instructed (educational) learning contexts. In a natural context, "the L2 is used normally for everyday communicative purposes" (Ellis 2008: 973) and is acquired 'along the way'. Natural contexts are contrasted with educational contexts, where L2 learning takes place in institutions such as schools, universities or computer-mediated environments (Ellis 2008). Natural learning contexts are assumed to provide more and more varied input to the L2 learners compared to instructed contexts (Ellis 2005; Lafford 2006; Segalowitz & Freed 2004; Tanaka & Ellis 2003; Tarone 2000). These differences in input quality are generally assumed to lead to different learning processes in both types of learning contexts. Natural learning contexts offer many opportunities for informal acquisition through contact with other speakers of the L2 in a variety of situations. The emphasis is on the social significance and functionality of what is being learned without conscious attention being directed to language forms or metalinguistic rules. In educational contexts, learners typically engage in a formal L2 learning process, directing explicit attention

to the rules and principles of the language, which is treated as a subject matter rather than a means of interaction (Ellis, 2008).

Within educational contexts, a distinction is often made between second language (SL) contexts and foreign language (FL) contexts. In FL contexts, the target language is largely confined to the school or language classroom and it often functions as an object of formal study. In SL contexts, the target language also plays a prominent role (e.g., as a vehicular language) in the context outside the school or classroom, a factor which is said to complement the formal learning process taking place in the language classroom. Another frequently made distinction within educational contexts in SLA research is that between language study abroad (SA) and study at home (AH) contexts (Collentine & Freed 2004; Freed 1995a). Like with FL/SL contexts, the main difference between the two types of contexts lies in the roles and functions of the target language: SA contexts are SL contexts in the sense that the L2 is prominent and dominant in the wider environment outside the language classroom, whereas AH contexts are typically FL contexts where the L2 functions mainly or exclusively as an object of (formal) study.

Clearly, binary contrasts such as the ones described (naturalistic/educational, SL/FL, SA/AH) are not clear-cut nor absolute; in reality, many authentic language learning contexts are mixed in terms of, for example, naturalistic and formal learning opportunities. Indeed, the variation within each of these broad contexts investigated may well exceed the differences that exist between them (Block 2003; Ellis 2008). This demonstrates that 'learning context', as an object of empirical study, is best approached as a multi-layered and multi-dimensional concept. Housen et al. (2011) provide a taxonomic framework of learning context that takes its complex nature into

account. Briefly, this framework distinguishes three broad, overlapping and intersecting contextual levels (cf. Figure 1).

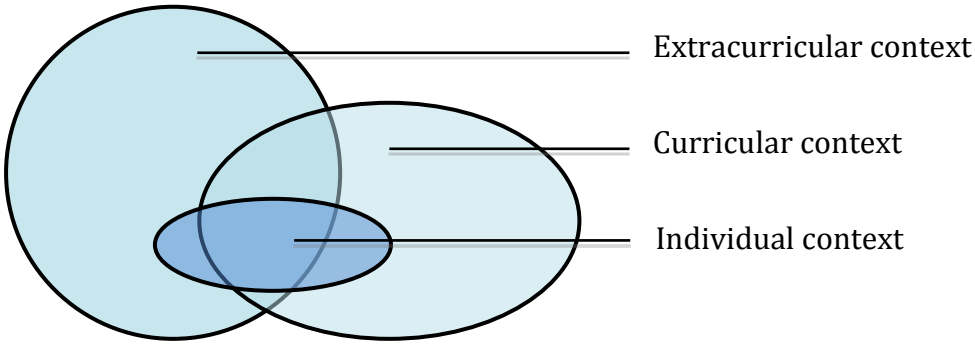

Figure 1: The learning context in instructed second language acquisition

The broadest level of the learning context is the extracurricular context, which comprises the wider sociolinguistic, demographic, cultural and institutional conditions both inside and outside the school. This is the contextual level our study focuses on. Two sublevels can be distinguished: the level of the school and the level of the wider, out-of-school community. At the school level, the learning context involves such aspects as opportunities for exposure to the L2 in informal contacts with peers and staff on the playground or in extracurricular activities. At the community level, the learning context involves the language(s), culture(s), attitudes, and other features of the wider society, which determine opportunities for extra-mural exposure to the L2.

The second level is the level of the language classroom or, more generally, the educational or curricular context. It comprises classroom practices in language lessons in terms of the didactic methods and activities used as well as the resources available for language teaching, all with implications for student and teacher roles and relations and, ultimately, for learners' focus of attention and the input and output opportunities created in the L2 classroom. At the curricular level, Housen et al.

(2011) further distinguish between language-subject classes and language-content classes (where the L2 functions as a medium for instruction and communication).

The last level is the learner's individual learning context. This micro-level context is shaped by, amongst other things, the learners' individual needs, orientations, preferences, abilities, knowledge, personality traits, and their social networks and discourse-interactional practices, again all with implications for learners' cognitive learning mechanisms (e.g., focus of attention) and the input and output opportunities available for language learning.

'Contextual variation' can thus be studied at different levels of the learning context. At each of the levels factors may be identified that putatively affect learning processes, the conditions under which they take place, and their outcomes in terms of proficiency attained.

This study will investigate the impact of 'language prominence' as a specific contextual factor potentially affecting the learning process. The prominence of a language is determined by its status, functions, roles and domains of use within each of the different layers of the context as outlined in Figure 1. This study will focus specifically on the effect of language prominence in the extracurricular context; variation at other contextual levels is controlled for as much as possible. Relevant factors at the extracurricular level include whether the L2 and the L1 have a *widespread* or *restricted functional role* in the school and/or in the society at large, e.g., whether they are official media of communication in the administration and in the media of the school and the wider society, whether and to what extent they figure in the linguistic landscape of the school and of the wider environment, whether they are spoken *as a native language* or used as a non-native *vehicular language* by a

significant section of the population, and whether most of the society or of the school population (students, staff) is monolingual or bilingual. We suggest that language prominence is an important determinant of the 'language learning potential' of a context, as manifested through the input, interaction and practice opportunities available. We further propose to operationalize language prominence in gradient rather than dichotomous terms; different levels of L2 prominence and possibly also L1 prominence may heighten or lower the L2 learning potential of a context. Such a gradient operationalization of prominence helps to move beyond traditional binary contrasts (such as FL/SL or SA/AH) and explore more nuanced differences between learning contexts.

Fluency

Although the term is frequently used for the characterization of the language performance and proficiency of native and non-native language users, there is no single definition of 'fluency' available. In lay usage, it typically denotes general language ability. Applied linguists, however, use more narrow definitions. Fluency is thus often seen as one of several aspects of language proficiency, each of which can be evaluated separately (Freed 1995a; Lennon 1990). A well-known example in case is the distinction between complexity, accuracy and fluency-related aspects (CAF) of L2 proficiency (Housen & Kuiken 2009).

For the purpose of this study, we take a speaker-based, psycholinguistic view on fluency. L2 fluency is considered a skill, in contrast to knowledge-based features of language production such as accuracy and complexity (Schmidt 1992; Skehan 1998a). In skill acquisition theory, becoming fluent in a second language requires the automatization of L2 knowledge so that it becomes accessible in real time (DeKeyser

2007b, 2009; Towell, Hawkins & Bazergui 1996; Towell 2012). Two kinds of L2 knowledge are involved: procedural and declarative knowledge. In the initial stages of L2 learning, learners have to resort to declarative knowledge stored in the long-term memory, requiring intensive controlled processing and causing frequent communicative breakdown. As the learner increasingly gains access to automatized production processes and quickly accessible formulaic language units, more working memory space is made available and L2 productions become more fluent. His language becomes characterised by a shorter average pausing time, more native-like pause patterns, a higher speech rate and longer runs between pauses (Towell 2002; Towell et al. 1996; Wood 2001; Wray 2000).

Features of fluent speech can be divided into two broad categories: temporal features and hesitancy (Ellis & Barkhuizen 2005; Freed 1995a, 2000; Freed et al. 2004; Llanes & Muñoz 2009; Towell et al. 1996; Witton-Davies, n.d.). Quantifying fluency is a matter of capturing the temporal and hesitational, linguistic aspects of the production that contribute to or detract from the effectiveness of the performance (i.e., that evidence efficient processing strategies). Skehan (2003) and Tavakoli and Skehan (2005) have proposed a model distinguishing three subdimensions of L2 fluency: speed fluency, breakdown fluency and repair fluency. Each of these dimensions can be operationalized and quantified independently. The first two dimensions are related to temporal aspects of production: speed fluency expresses the speed of delivery of the performance and breakdown fluency quantifies the pausological features of the language. Repair fluency, then, relates to hesitancy and covers features of production related to self-corrections and online monitoring.

A multitude of measures of fluency is currently available. Temporal measures such as Speech Rate, expressed in words or syllables per time unit, and Mean Length of Run,

that is, the average number of words or syllables produced between pauses, emerge as reliable predictors of speed fluency as well as of general fluency (Ejzenberg 2000; Freed 1995a, 2000; Lennon 1990; Riggenbach 1991; Towell et al. 1996). Number of Silent and Filled Pauses have been shown to be good measures of breakdown fluency (Freed 1995a, 2000; Lennon 1990; Riggenbach 1991). The picture that emerges from research into hesitation phenomena such as repetitions, retraces and reformulations, which are often used in measures of repair fluency, is mixed. The most common measures are frequency measures, which set the incidence of repair against text length. However, the frequency of repair phenomena in general rarely correlates with other global fluency measures or fluency judgements (Witton-Davies, n.d.). While identifying repair fluency as a phenomenon distinct from speed and breakdown fluency, Tavakoli and Skehan (2005) also observe that it behaves differently from the other two dimensions of fluency.

How can language prominence conditions in the learning context facilitate or impede L2 fluency development? Contexts with high L2 prominence present the learner with a variety of practice situations, in magnitudes unachievable in contexts with low L2 prominence. As processing a great many instances is a prerequisite for the automatization process to succeed (DeKeyser 2007b, 2009), it may be assumed that learning a language in an environment where the L2 is highly prominent offers better prospects of developing high fluency levels. However, the extent to which the learner seizes the L2 learning potential offered is, barring cognitive and linguistic considerations, also a matter of individual choice (Freed 2008; Kinginger 2008). L1 prominence is proposed in this study as a parameter in this choice: it lowers the (perceived) pertinence of the L2 and may cause whatever opportunities for output practice and interaction the context affords to remain unexploited. Since fluency is

crucially (though not exclusively) a function of output and practice, we assume that L2 fluency will be lower in contexts where the L1 is highly prominent, in spite of whatever the prominence of the L2 may be. In short, in some contexts the effect of L1 prominence may outweigh that of L2 prominence.

Previous research

Since the 1950s, researchers have been interested in how languages are learned in different learning contexts. One of the first distinctions to have become institutionalized is that between foreign and second language learning contexts (Nayar 1997). The difference between these two types of contexts lies mainly in the prominence of the L2: foreign language learning occurs in contexts where the L2 is not a national language nor prominent in any other way in the society, whereas second language learning occurs in an L2 native speaker environment. In spite of some referential fuzziness, especially concerning the term 'second language', most researchers agree that the language learning processes in these contexts are different, as are learning outcomes (Ellis 2008; VanPatten & Lee 1990).

A more recent research paradigm that is relevant for our study is that on the effects of study abroad (SA) programmes compared to 'at home' (AH) contexts (Freed 1995b, 1998; Freed et al. 2004; Juan-Garau & Pérez-Vidal 2007; Lafford 2004, 2006; Segalowitz & Freed 2004; Serrano et al. 2011; Yager 1998). A discussion of the impact of these different learning contexts on learning outcomes is provided by Freed (2008). In brief, SA promotes lexical density as well as learners' pragmatic abilities. AH learners are found to be equal or superior to SA learners when it comes to linguistic accuracy and syntactic development. Concerning oral L2 fluency, SA learners benefit from their experience abroad especially when it comes to speed and breakdown fluency. Freed (1995b) reports a higher speech rate and fewer pauses and silences in learners in SA environments compared to AH learners. Segalowitz and Freed (2004) make mention of a significant and positive effect of the SA context on speech rate and the length of fluent runs. Freed et al. (2004) reach similar conclusions, although in their comparative study of three contexts (SA, AH and domestic

immersion IM), the IM group improved even more than the SA group. They associate this finding with the amount of extracurricular output and interaction opportunities, which turned out to be higher for IM students than for AH and SA students. Lafford (2004) also attributes the fluency advantage observed in second language learning-type contexts to the type of interactions they afford to the learners: because the focus is primarily on the effective transfer of meaning, automatization is stimulated and there is fewer controlled processing. From a skill acquisition theory point of view, Towell et al. (1996) report fluency advantages in terms of mean length of run in SA learners of French compared to AH learners. In a subsequent study, additional differences in speech rate and time spent pausing are found (Towell 2002).

Emerging from this overview of literature on context and fluency is the general principle that differences in L1 and L2 prominence in the learning context can affect L2 fluency development. Increased exposure to input and opportunities for output and interaction are assumed to enhance the process of automatization underlying fluent production (Towell 2002, 2012; Wood 2001). Although the findings concerning this *general* principle are considered conclusive, previous research is characterised by a number of recurring limitations.

First, many of the studies use a relatively small number of participants (e.g., between 28 and 40 for the studies discussed in the previous paragraph; see Llanes 2011 for an overview) and some do not analyze their results statistically. The small sample sizes are often due to the limited number of participants in SA projects and to pragmatic considerations related to the measurement of fluency. Notwithstanding, research on larger samples submitted to appropriate statistical testing provides a more solid basis for a theory on fluency development in context.

Second, quantitative research to date on contextual factors has mainly focused on adult populations (e.g., students in exchange programs or immigrants). However, younger learners' fluency development, and especially that of children and pre-adolescents, may not be affected in the same way by elements in the learning context. Children are generally assumed to be better at learning procedural skills than adults (Muñoz 2007; Ullman 2001). Furthermore, in the wake of globalization and growing mobility, children, like adults, are ever more confronted with the challenges of L2 learning in a variety of contexts (e.g., children participating in short-term youth exchange programs but also in families in expat situations). Little is known of how they cope with these circumstances and of the impact on their L2 proficiency. The present study focuses on young learners of English, aged between 8 and 14.

Finally, much of the previous research on context in SLA has operationalized learning context in dichotomous or categorised terms: natural versus educational environments, second versus foreign language learning contexts, study abroad (SA) versus immersion (IM) and 'at home' (AH) contexts etc. The differences between learning contexts however are typically dynamic and cover a multitude of aspects. They often transcend the focus of the study and can cause uncontrolled variation. Across studies, contexts that are assigned to the same 'category' may actually have little in common in reality. Moreover, many of the studies fail to describe the contexts under investigation and the input, output and interaction circumstances they present in sufficient detail (Freed 1995a, 2008). This raises questions as to the generalizability of the findings of this research (Freed 1995b; Ellis 2008). In an attempt to remedy these issues and to gain a more fine-grained picture of the contribution of the learning context to L2 learning, our current research examines controlled variation of L1 and L2 prominence as identifiable elements in the learning context. In the conception of

the design and the sampling of the data set, we went to great lengths to reduce confounding factors to a minimum.

The study

Aims and research questions

The general research question which this study aims to answer is: *How do differences in L1 and L2 prominence in the learning context affect levels of oral L2 speed, breakdown and repair fluency?* Our assumption is that in contexts where the L2 is more prominent, there is more and more varied input, output practice as well as occasions for L2 use in interactional circumstances (Tarone 2000; Tanaka & Ellis 2003; Segalowitz & Freed, 2004; Ellis 2005; Lafford 2006; DeKeyser 2007b) which grant these contexts a higher 'L2 learning potential'. High L1 prominence however lowers the sense of pertinence associated with the L2 (potential L2 interlocutors in these contexts typically also master the L1) and may thus impede output and interaction in the L2. As input in the target language is a necessary condition for the development of L2 knowledge (Ellis 2005; Krashen 1981, 2004; Van Lier 1997) and output practice, especially embedded in interaction, is said to facilitate the automatization process (DeKeyser 2007b; Isabelli 2000; Lafford 2004; Nobuyoshi & Ellis 1993) which is essential for the development of oral fluency (Towell et al. 1996), we hypothesize that different fluency levels will be found in contexts with different levels of L1 and L2 prominence.

The specific research questions for this study are:

(1) *How do different levels of L2 prominence in the extracurricular context affect the different dimensions of oral L2 fluency (speed, breakdown and repair fluency)?*

(2) *Can L1 prominence conditions mediate any effects of L2 prominence on oral L2 fluency? And if so, in what sense?*

It is assumed, with respect to (1), that contexts in which the L2 is more prominent allow for more exposure to the L2 and increased L2 output practice and interaction opportunities, which is expected to optimise the automatization process and lead to greater L2 fluency gains. This difference is expected to be most salient when it comes to speed and breakdown fluency as these aspects of performance most clearly evidence higher levels of automatization (cf. Tavakoli & Skehan 2005; Freed 2008; Towell 2002). Regarding (2), we hypothesize that high L1 prominence impedes L2 output practice and interactions and thus interferes with L2 prominence effects. We anticipate an inverse relation between L1 prominence levels and L2 fluency levels. Here too, we expect this effect to be manifested most clearly in speed and breakdown fluency.

Participants

The sample consists of 100 young learners of L2 English and a matched benchmark of 26 native speakers of English. Participants' ages range between 9 and 14 years (see Table 1). This wide range is caused by the need to control for amount of classroom exposure to the L2 – 580 hours on average – across the four learning contexts investigated. All learners are native speakers of German. They all indicate that German is the dominant language at home and that they do not use English in their home or near-family environment. Thus, variation at the level of the individual context in terms of L1 and L2 use and exposure was controlled for in a general way.

	Context 1 German EFL	Context 2 ES Germany	Context 3 ES Brussels	Context 4 ES UK
N age 9	–	7	7	5
N age 10	–	12	12	10
N age 11	–	7	7	7
N age 12	7	–	–	–
N age 13	12	–	–	–
N age 14	7	–	–	–
Mean hrs of classroom L2 exposure	580	580	580	580
Mean age	13	10	10	10
Total N	26	26	26	22

Table 1: Participants

ES = European School
EFL = English as a Foreign Language

Design

This study focuses on the effect of L1 and L2 prominence in the extracurricular learning context. Table 2 offers an overview of the design.

In Table 2, for each context the level of prominence of the L1 and the L2 in the extracurricular context (the out-of-class environment) is specified, with '+' indicating high prominence and '-' indicating low prominence. The characterizations of the four learning contexts and the estimations of L1 and L2 prominence are based on qualitative data from a general questionnaire on language use administered to the learners and on extensive observations in the various schools conducted in the frame of this and previous studies on the European Schools (cf. Housen & Baetens Beardsmore 1987; Baetens Beardsmore 1993, 1995; Housen 1995, 2002; Housen et al. 2011). As explained, two sublevels are distinguished in the extracurricular context: the school level outside the language classroom and the level of the wider community outside the school. Language prominence conditions in the school environment may

be very different from those outside the school due to the specifics of the school system. This is often the case in the European Schools, which serve as the setting for the larger part of our design.

	Context 1 EFL Germany	**Context 2** ES Germany	**Context 3** ES Brussels	**Context 4** ES UK
L1 prominent in the school context	++	++	-	-
L1 prominent in the wider community	++	++	- -	- -
L2 prominent in the school context	- -	+/-	+/-	++
L2 prominent in the wider community	- -	- -	-	++
L2 = medium of general instruction	- -	+	+	+

Table 2: Language roles, functions and domains of use in the curricular and extracurricular context

Three of the four learner subsamples (contexts 2 through 4) were collected in the years 4, 5 and 6 in European Schools in Germany, Belgium and the United Kingdom. The pupils are between 9 and 11 years old and have spent all or most of their educational career in the European School (ES) system. This is a network of primary and secondary schools across Europe that offers basic education in 14 official EU languages so that children of (expat) EU officials can receive continued instruction in their L1 in different EU countries (see Baetens Beardsmore 1995 and Housen 2002 for more details on the ES system and curriculum). The European Schools were chosen for this study as they allow for contextual variation to be studied in long-term education (as opposed to short-term programs such as SA) with minimal interference of curricular differences. All ES pupils learn English in highly similar curricular

circumstances, irrespective of their country of residence. English L2 lessons are taught from the first year of primary school onwards. In addition, as from the third year of primary school, English is used alongside German as a medium of instruction in one or two content lessons (Physical Education and European Hours, amounting to 150 minutes per week). In secondary school, the L2 progressively gains importance as a medium for the instruction of different subjects. All European Schools and all language sections follow the same curriculum and apply the same teaching methods. L2 subject lessons are based on communicative and functional-notional principles in primary school and supplemented by a more analytic and structural approach in secondary school.

Another subsample (context 1) was collected in mainstream English-Foreign Language (EFL) classes in years 7, 8 and 9 of a Gymnasium in Munich, Germany. These children had the same amount of classroom exposure to English as the ES pupils, albeit at a later age (between 12 and 14) due to the curricular differences between the European Schools and German EFL. As a result, the learners in context 1 are on average 3 years older than the ES pupils in contexts 2, 3 and 4. Mainstream Foreign Language Teaching is the prevalent type of language education in most of the developed world (Baker 2011). For the pupils in the first subsample, English was introduced as a subject in the third year of primary schooling for two periods per week. The weekly number of hours of English instruction rose progressively to 5 hours per week in the fifth year, to gradually decrease to 3 hours per week in the final years of secondary schooling. Teaching methodology in the case of our sample is based on communicative, notional-functional and structural principles (Richards & Rodgers 2001) with some instances of focus-on-form teaching (Long & Robinson 1998).

This design allows us not only to investigate the effect of the traditional FL/SL context contrast by comparing the high L2 prominence context 4 with low L2 prominence contexts 1 and 2, but also to investigate how different levels of L2 prominence may affect L2 fluency by involving context 3 in the comparison (cf. the first research question). In addition, we can study the effect of L1 prominence on L2 fluency by contrasting contexts 2 and 3 (cf. the second research question).

Specific research sites

In context 1 (EFL classrooms in Germany), the L2 (English) has very low prominence at the extracurricular level. Its use and thus the main opportunities for input and practice are restricted to the curricular level, i.e., the EFL classroom. In the wider environment, the L1 (German) is highly prominent, which is hypothesized to be a considerable impediment to spontaneous output practice and interaction in the L2. The L2 learning potential of this context is therefore considered to be the lowest of the four contexts studied.

In context 2 (ES in Germany), the prominence of the L2 is heightened by its function as a medium for instruction and its (at least for the German L1 pupils) very limited role as a vehicular language in the school. Learners in this context have access to more and more varied input and practice situations compared to the EFL learners in context 1. The highly prominent status of the L1 in the wider environment is assumed to further limit the potential of the L2, which may further affect fluency development. In sum, actual output practice and interaction opportunities in context 2 remain limited.

Neither the L1 nor the L2 is prominent in the out-of-school context in context 3 (ES in Brussels, Belgium), where French and Dutch are the dominant languages. The L2,

English, has as an international lingua franca greater potential in the European capital than the L1, German. In the school, both languages in principle have an equal status as official working languages in the ES administration but in the Brussels schools the dominant vehicular language is French. Here too, in practice, the potential of English is greater than that of German. The role of the L2 as a medium for the instruction of a few subjects, like in context 2, further enhances its prominence at the school level. The potential of the L1 is restricted to the German L1 section at school and to the home environment. Overall, this learning context presents more opportunities – and fewer impediments – for output practice and interaction in the L2 than contexts 1 and 2 and thus is felt to have a higher L2 learning potential.

Context 4 (ES United Kingdom) is a context where English is highly prominent throughout, in the school as well as in the wider environment. Combined with the low prominence of the L1 –use of German is restricted to the German L1 section and the home environment – this context offers ample opportunities for learners to produce continuous spontaneous L2 output. This context therefore is predicted to have the highest L2 learning potential overall and for fluency development in particular.

Methodology

Instruments

Oral L2 production was elicited by means of an oral picture-story retelling task, the Frog Story (Mayer 1969). This type of task prompts learners to produce a variety of linguistic structures and lexical items in semi-spontaneous language production (Berman & Slobin 1994). It allows for measurement of the fluency as well as the accuracy and the complexity of language production (Fiestas & Peña 2004; Skehan 2003). The oral production data were recorded and transcribed in CHAT format. The transcriptions were made by 4 trained transcribers in a carefully controlled procedure

to ensure high interrater reliability. Intercoder reliability (and validity) of the coding was checked continuously and collectively as the coding process progressed. Specialized software – CLAN (MacWhinney 2000) – was used for the quantitative analysis of the material.

Fluency metrics

Following Skehan (2003), three distinct subdimensions of fluency – speed fluency, breakdown fluency and repair fluency – were measured by two metrics each, listed in Table 3.

Dimension	Measure
Speed fluency	mean number of word tokens per minute (Speech Rate, SR)
	mean number of word tokens between dysfluent pauses (Mean Length of Run, MLR)
Breakdown fluency	Number of Silent Pauses weighted for length (SP)
	Number of (lexical and non-lexical) Filled Pauses (FP)
	ratio of Number of Dysfluent Pauses(DP)
Repair fluency	Number of Repetitions (Rep)
	Number of Rephrases (Reph)

Table 3: Overview of fluency measures

Speed fluency is expressed by Speech Rate (SR) and Mean Length of Run (MLR). Speech Rate was operationalized as the mean number of unpruned word tokens per minute in a transcript (Freed et al. 2004; Lennon,1990): the number of word tokens in each transcript (including filled pauses, repeated and rephrased language) was divided by the total time spent speaking in seconds and multiplied by 60. The second measure

of speed fluency, Mean Length of Run, is operationalized as the mean number of pruned word tokens between filled and silent pauses.

Breakdown fluency is operationalized in terms of the total number of filled and silent pauses, each quantified in a separate measure, and a ratio of the number of dysfluent pauses. The Number of Filled Pauses (FP) is the sum of the number of lexical fillers (e.g., 'you know', 'like') and the number of non-lexical fillers (e.g., 'uh', 'hm'). The Number of Silent Pauses (SP) is the total number of silences per transcript, weighted for the length of the silence: short pauses (approx. 1 second) were given a weight of 1, medium length pauses (1-3 seconds) a weight of two and long pauses (over 3 seconds) a weight of 3. The third measure, the Number of Dysfluent Pauses (DP), incorporates pause location, a key feature in the assessment of oral fluency (Chambers 1997; Lennon 1990; Raddaoui 2004; Wood 2001; Zellner 1994). Freed (1995a) suggests that only pauses of a certain length (medium and long) and/or occurring in positions other than clause boundaries (medium) should be considered true markers of dysfluency, as a certain amount of silence is inherent to speech production, also in native speakers. The number of dysfluent pauses, then, is the sum of all medium length pauses occurring outside clause boundaries and all long pauses in any position (Freed 1995a, 2000; Lennon 1990). It is expressed as a ratio with the number of tokens in the denominator in order to avoid a bias in favour of shorter productions.

The third dimension of oral L2 fluency, repair fluency, is expressed by what Ellis and Barkhuizen (2005) have called hesitation phenomena: false starts, repetitions, reformulations and replacements (see Skehan & Foster 1999: 107 for definitions). In our study, repair fluency is measured by two metrics: the Number of Repetitions (Rep) and the Number of Rephrases (Reph), which includes false starts, reformulations and replacements.

Statistical analyses

Fluency measures that represent ratios or otherwise incorporate a correction for differences in text length (i.e., Speech Rate, Mean Length of Run and the Number of

Dysfluent Pauses) were subjected to simple analysis of variance (ANOVA) or, in the case of non-normality of the data, to its non-parametric counterpart, the Kruskall Wallis rank sum test, to assess the effect of the main factor 'context'. For the other measures (number of silent pauses, filled pauses, repetitions and retraces), differences in text length were corrected by including the total number of word tokens as a covariate (ANCOVA) in the statistical analyses. The assumptions for AN(C)OVA were checked for each of the variables and whenever possible transformations were applied to obtain a normal distribution of the data. Bonferroni tests were applied for ANCOVA post hoc comparisons and Scheffé tests for ANOVA post hoc comparisons. All alpha levels were set at .05. Where non-parametric testing was required, Mann-Whitney rank sum tests were used for post hoc testing. Here, significance levels were adjusted for multiple paired testing by applying the Bonferroni correction.

Results

Speed Fluency

(a) Speech Rate

Table 4 shows the results of the analyses for Speech Rate. The highest Speech Rate among learners is found in context 4. They produce on average some 105 words per minute. This group is followed by the learners in context 3 (C3) and context 1 (C1). The pupils in context 2 (C2) obtain the lowest average Speech Rate of 68.75 words per minute, or only 65% of the speed of delivery of the learners in C4. While the highest mean is found in context 4, this context also displays the most internal variation as indicated by the standard deviations. The lowest standard deviation is observed in context 1.

	Mean words/min (SD)	F main effect context	Post Hoc significant contrasts α=.05
Context 1 (C1) German EFL	88.05 (16.57)		
Context 2 (C2) ES Germany	68.75 (22.95)		
Context 3 (C3) ES Brussels	89.35 (22.94)	23.09 (p=.000; η_p^2=.433)	C2 < C1=C3=C4 C1,C2,C3 < BM
Context 4 (C4) ES UK	105.14 (26.55)		
Benchmark (BM)	124.85 (21.13)		

Table 4: Results speed fluency: mean number of words per minute

Statistical analyses using pairwise post hoc comparisons show that pupils in context 2 produce significantly fewer words per minute than their peers in the other learning contexts ($p<.05$). The benchmark (BM) pupils produce a higher number of words per minute than the other groups ($p<.001$) with the exception of the learners in C4, whose mean Speech Rate does not differ significantly from that of the native speakers.

(b) Mean Length of Run

As shown in Table 5, the highest Mean Length of Run among the L2 learners is found in C4, where pupils produce on average 7.84 words between pauses. It should be noted however that the mean for this context is associated with a very high standard deviation. The pupils in contexts 3, 2 and 1 obtain lower average MLR scores and lower standard deviations. Within-context variation is lowest in context 1.

	MLR (SD)	F main effect context	Post Hoc significant contrasts α=.05
Context 1 (C1) German EFL	3.07 (1.52)	25.85 ($p=.000$; $\eta_p^2=.461$)	C1=C2 < C3=C4 C1,C2,C3 < BM
Context 2 (C2) ES Germany	3.17 (2.23)		
Context 3 (C3) ES Brussels	4.91 (2.69)		
Context 4 (C4) ES UK	7.84 (6.96)		
Benchmark (BM)	9.87 (4.85)		

Table 5: Results speed fluency: mean length of run

The pupils in C3 and C4 produce significantly longer runs between pauses than the pupils in C1 and C2 ($p<.05$). No significant difference was found between the MLR of the C4 pupils and the native speakers, who significantly outperform the learners in C1, C2 and C3 ($p<.01$).

Breakdown Fluency

(a) Number of Silent Pauses

Table 6 features the results for the number of silent pauses. The production of the learners in context 4 features the fewest silences among the German L1 pupils, followed by C3, C1 and finally C2, where the learners' speech contains the highest number of unfilled pauses, almost 3 times as many as in C4. The highest standard deviation is observed in context 2 and the lowest in context 4.

	Mean n° of silent pauses (SD)	Estimated mean n° of silent pauses*	F	Post Hoc significant contrasts α=.05
Context 1 German EFL	69.27 (28.59)	67.14	For covariant text length: 23.96 (p=.000; η_p^2=.166) For main effect context: 20.16 (p=.000; η_p^2=.402)	C1=C2 < C4 C2<C3 C1,C2,C3 < BM
Context 2 ES Germany	90.08 (42.96)	87.39		
Context 3 ES Brussels	53.23 (39.73)	56.05		
Context 4 ES UK	33.18 (18.79)	35.31		
Benchmark (BM)	23.00 (10.71)	23.20		

* Mean corrected for effect of covariant text length

Table 6: Results breakdown fluency: mean number of silent pauses

The speech recorded in C4 contains significantly fewer silences than that in C1 and C2 (p<.01). The learners in C2 are also outperformed by the C3 learners (p<.01). The BM data show fewer unfilled pauses (p<.01) than the data from C1, C2 and C3. C4 production is not statistically different from that of the BM in terms of unfilled pauses.

(b) Number of Filled Pauses

Table 7 shows that the C4 learners' production contains the fewest fillers, followed by those in C3, C2 and C1 respectively. The learners in context 1 produce over double as many fillers as those in context 4. The standard deviations display the same pattern. The internal variation is high in all four contexts.

	Mean n° of filled pauses (SD)	Estimated mean n° of filled pauses*	F	Post Hoc significant contrasts α=.05
Context 1 German EFL	47.92 (30.42)	47.81	For covariant text length: 28.26 (p=.000; η_p^2=.191) For main effect context: 13.72 (p=.000; η_p^2=.314)	C1=C2 < C4 C1 < C3 C1,C2,C3 < BM
Context 2 ES Germany	41.00 (25.23)	41.57		
Context 3 ES Brussels	27.77 (22.03)	30.63		
Context 4 ES UK	23.32 (16.75)	23.27		
Benchmark (BM)	14.12 (8.91)	10.84		

* Mean corrected for effect of covariant text length

Table 7: Results breakdown fluency: mean number of filled pauses

The post hoc analyses for the main effect of context show that the learners in C4 equal the BM and outperform C1 and C2 ($p<.05$). The C1 learners' speech also features more filled pauses than that of the learners in context 3 ($p<.05$). The BM speech contains fewer fillers than the speech recorded in C1, C2 and C3 ($p<.01$).

(c) Ratio of Number of Dysfluent Pauses

The L2 speech recorded in C4 features the lowest number of dysfluent pauses among the L2 learners, followed by C3, C1 and C2 in that order, as indicated in Table 8. The mean ranks confirm this pattern.

	Ratio of n° of dysfluent pauses	Mean rank n° of dysfluent pauses*	Chi square	Post Hoc significant contrasts α=.05
Context 1 German EFL	0.020	81.88	52.77 (p=.000: ϕ=.647)	C1=C2 < C4 C1,C2,C3 < BM
Context 2 ES Germany	0,031	91.65		
Context 3 ES Brussels	0.015	66.75		
Context 4 ES UK	0.005	47.55		
Benchmark (BM)	0.002	27.21		

* The data are not normally distributed and require non-parametric testing.

Table 8: Results breakdown fluency: ratio of number of dysfluent pauses

Statistically significant differences were found between C4 and C1 and between C4 and C2, with the C4 learners' speech containing fewer dysfluent pauses in both instances (p<.001). Analyses further reveal a significant contrast between the BM on the one hand and three L2 learner groups (C1, C2 and C3) on the other hand (p<.01), with the BM obtaining a lower average number of dysfluent pauses.

Repair Fluency

(a) Number of repetitions

The results for the number of repetitions are summarized in Table 9. The L2 production of the learners in context 4 contains on average 5.59 repetitions per narrative. Theirs is the lowest mean number of repetitions. C1, C3 and C2 respectively obtain higher means. The learners in context 2 produce on average 12.46 repetitions per text. Overall, the differences between contexts are small and all contexts display relatively high standard deviations. The highest internal variation is observed in context 2 and the lowest in context 4.

	Mean n° of rep (SD)	Estimated mean n° of rep*	F	Post Hoc significant contrasts α=.05
Context 1 German EFL	9.50 (7.52)	8.94	For covariant text length: 31.55 (p=.000; η_p^2=.208) For main effect context: 5.98 (p=.000; η_p^2=.166)	C2=C3 < C4 C2,C3 < BM
Context 2 ES Germany	12.46 (9.44)	11.75		
Context 3 ES Brussels	10.73 (7.07)	11.48		
Context 4 ES UK	5.59 (4.77)	6.15		
Benchmark (BM)	5.50 (4.53)	5.55		

* Mean corrected for effect of covariant text length

Table 9: Results repair fluency: mean number of repetitions

Post hoc testing for the main effect of learning context shows that the BM pupils as well as the L2 learners in C4 significantly outperform the L2 learners in contexts 2 and 3 (p<.05).

(b) Number of rephrases

Table 10 shows that the lowest number of rephrases was observed in the speech of the learners in C1, followed by the C4, C3 and C2 learners in that order. The figures are similar across contexts, as are standard deviations.

	Mean n° of rephrases (SD)	Estimated mean n° of rephrases*	F	Post Hoc significant contrasts α=.05
Context 1 German EFL	11.19 (7.01)	10.35	For covariant text length: 81.26 (p=.000; η_p^2=.404) For main effect context: 4.57 (p=.002; η_p^2=.132)	C2<C1,BM
Context 2 ES Germany	16.88 (10.42)	15.83		
Context 3 ES Brussels	12.38 (6.53)	13.50		
Context 4 ES UK	12.27 (8.17)	13.11		
Benchmark (BM)	9.69 (4.52)	9.77		

* Mean corrected for effect of covariant text length

Table 10: Results repair fluency: mean number of repairs

Statistics reveal a significant difference between C2 and the BM, with the native speakers rephrasing less frequently than the L2 learners in context 2.

Discussion

The radar graph or 'star plot' in Figure 2 visually summarizes the results. It provides an overview of the levels of the different aspects of oral productive fluency observed in the four learning contexts relative to the benchmark. To obtain this graph, the data for each measure were set against the benchmark data to form percentages (with the benchmark scores representing 100%). For negative measures – that is, the measures of breakdown and repair fluency, where higher values reflect lower fluency – the percentages were inverted (1/x) so that all the results are comparable. Thus, four 'stars' were obtained, one for each context, shaped by the average percentages calculated for each of the fluency measures.

A relatively clear general pattern emerges from the radar plot. Overall, average levels of speed, breakdown and repair fluency are lowest in context 2 (ES Germany) and

highest in context 4 (ES UK). Context 3 (ES Brussels holds a midway position between these two. The results for the Number of Rephrases seem to deviate from the findings in the other contexts and the 'star' formed by the data from context 1 (German EFL) describes a somewhat different pattern than the other stars, causing a number of cross-overs in this otherwise quite 'clean' graph.

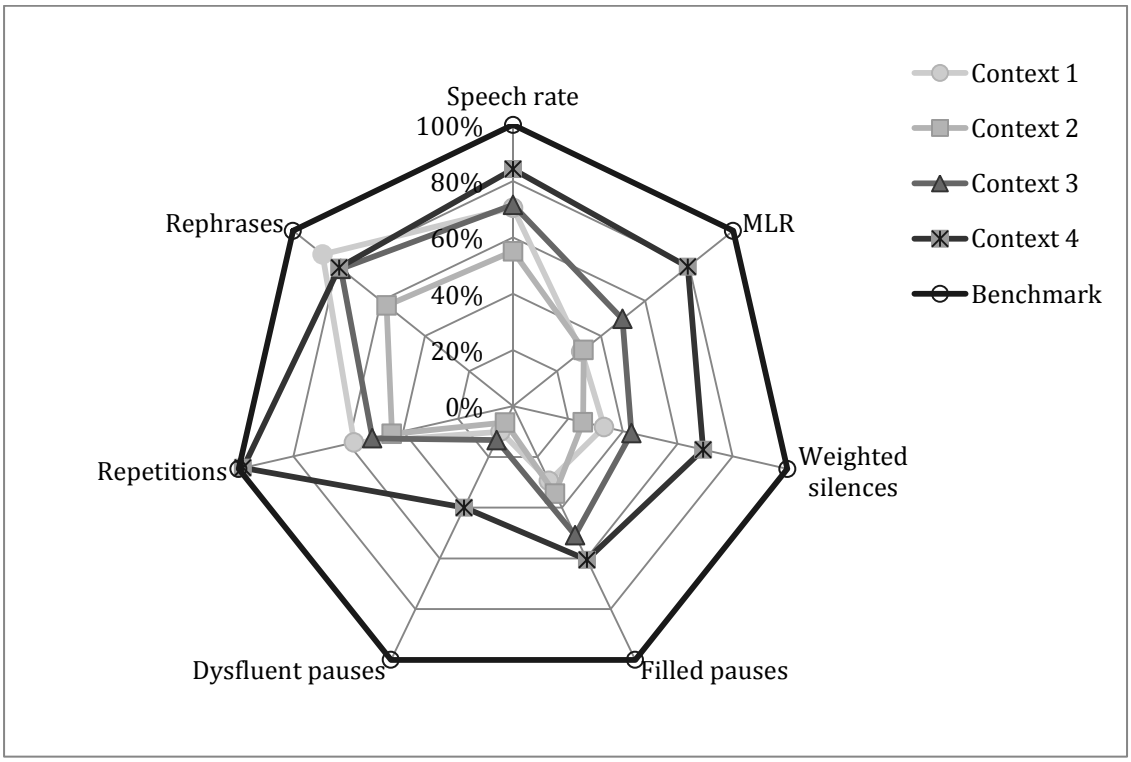

Figure 2: Radar plot of the results for all parameters per context

In view of the first research question, statistics confirm that C4 learners outperform C1 and C2 learners in terms of Mean Length of Run (MLR), the Number of Silent Pauses (SP), the Number of Filled Pauses (FP) and the Number of Dysfluent Pauses (DP). In addition, C4 averages for Speech Rate (SR) and the Number of Repetitions (Rep) are significantly higher than those in C2 (C1 is not significantly outperformed by C4 on these measures). C4 significantly outdoes C3 only in the Number of Repetitions. In sum, C4 learners overall score best and especially outperform C1 and C2 learners. This confirms the general hypothesis that higher levels of fluency would

be observed in a context with high L2 prominence at the extracurricular level, compared to a context with low extracurricular L2 prominence. This L2 prominence effect is further confirmed by the midway position of C3. The learners in C3 outperform those in C1 on MLR and FP, and those in C2 on SR, MLR and SP. Their performance on SR, MLR, SP, FP and DP does not differ significantly from that of the C4 learners. In sum, the emerging pattern for C3 is mixed and suggests that C3 learners' fluency level is more advanced than that of the learners in C2 but not as advanced as that of the C4 learners. This finding is in accordance with the L2 prominence levels in these contexts, with C3 taking a midway position between C1 and C2 on the one hand and C4 on the other hand. This finding also goes to show that the gradient operationalization of L2 prominence yields important merits as more subtle differences in the degree of L2 prominence can have an impact on L2 fluency levels. Based on our results, context 3 emerges as a distinct learning context, different from the other contexts observed and producing different learning outcomes. A traditional, dichotomous research design would have obscured such distinctions. Furthermore, the observation that C3 fluency levels tend towards C4 levels for some dimensions of fluency and towards C1 and C2 levels for other dimensions suggests that the different dimensions of fluency develop differently and each have their own developmental dynamics. This in turn provides further evidence for the multidimensional nature of the fluency construct and underscores the importance of a multidimensional operationalization. Our expectations were not fulfulled concerning the relation between context 1 and context 2. In general, the results obtained from C1 form a different pattern than the other results. This is discussed more thoroughly below.

Our second research question concerns the role of L1 prominence. It was hypothesized that L1 prominence can impede L2 output practice and interactions and thus detract from the potential for fluency development the context offers. In order to investigate this hypothesis, we consider the contrast between C2 and C3. Both contexts are similar in terms of L2 prominence but markedly different in terms of L1 prominence – which is high in C2 and low in C3. The radar plot shows that C3 learners outperform C2 learners on all measures. Statistical analysis confirms this trend for SR, MLR and SP. Thus, we find support for the hypothesis at the level of speed fluency and breakdown fluency. We propose that L1 prominence levels should be taken into account when operationalizing 'learning context', as high L1 prominence can moderate the L2 learning opportunities afforded by L2 contact situations. High L1 prominence probably has an impeding effect on L2 output practice and interactions and thus acts as a restraining factor for automatization, a process essential to fluency development. The issue of L1 prominence deserves further inquiry; a more gradient operationalization, like for L2 prominence in the present study, may yield a clearer picture of how (much) L1 prominence can affect the L2 learning potential of a context not only in terms of fluency development but also in terms of other dimensions of L2 proficiency such as complexity and accuracy.

The measures of repair fluency yielded the least clear results, as hypothesized. The scores for repair fluency reveal few significant differences between contexts and the data are characterised by high standard deviations. The radar plot shows that the results for the Number of Rephrases (Reph) in particular display a pattern that deviates from what is observed for the other fluency measures. This gives rise to a number of reflections. Findings by Witton-Davies (n.d.) suggest "repeats" (exact repetitions immediately after the original utterance; 'repetitions' in this study) are

significantly less detrimental to fluency than "reformulations" (repetitions with some change in lexis or grammar; 'rephrases' in this study), both for learner speech as well as for native speaker speech. Freed (1995a), however, states that while rephrases are often assumed to indicate a lack of fluency, this need not always be the case. Her results confirm the findings of other researchers (Lafford 1995; Lennon 1990; Olynyk & Sankoff 1990; Riggenbach 1989) that SA learners' speech is characterized by more of these hesitation markers than the speech of AH learners. Freed contends that the challenges of the SA learning context in terms of complex interactions spur the SA learners to attempt to express more complex thoughts. In these attempts, "they often stumble linguistically, monitor their speech and self-correct along the way" (Freed 1995b: 141). Our study produces a different outcome: previous analyses (presented in Housen et al. 2011) indicate that mean lexical and grammatical complexity levels are indeed higher in context 4 compared to contexts 1 and 2, but the Number of Rephrases does not differ significantly (although in raw numbers, C4 learners do produce slightly more rephrases than C1 learners). Possibly, the levels of automatization of complex arguments of our C4 learners at the time of data collection are higher than the SA learners' in previous research by Freed and others, and thus they do not "stumble linguistically" so often (Poulisse 1999). This may be due to the length of their language learning experience in the L2 prominent environment, which amounts to two years or more in the case of our C4 sample, compared to the typically shorter stays in the case of SA programs. As the degree of automatization depends on the amount and frequency of exposure and practice (DeKeyser 2007a, 2009), higher levels of automatization may be expected amongst our learners. A further possible factor is the younger age of our learners compared to the typically teenage or adult learners in SA research: not only are younger (pre-pubescent) learners more apt to

acquire procedural knowledge (Muñoz 2007; Ullman 2001), younger learners may also use overt monitoring strategies less frequently than older learners. Kormos (1999, 2006) raises another point that may be of relevance for our deviant results for Rephrases. She states that at least two types of rephrases should be distinguished: as proficiency grows, the number of "low-level linguistic error repairs" decreases and the number of "appropriacy repairs" increases (Kormos 2006: 134). The fact that both types of rephrases were pooled in one measure in our study may explain why few significant differences between contexts are observed. Kormos puts forward that the number of error repairs, as a particular subgroup of what we have called 'rephrases', can function as a sensitive measure of L2 fluency: "error repairs signal not yet fully automatized processes; thus, they can serve as good indicators of automaticity in L2 speech production." (2006: 134). On a final note, it has also been suggested that hesitation phenomena, and rephrases in particular, are less related to proficiency and more to individual differences in the degree of online monitoring (Ellis & Barkhuizen 2005; Krashen 1977). This may account for the high within-context variability observed as well as for the lack of between-group differences. Be that as it may, it is likely that, as suggested by amongst others Ellis and Barkhuizen (2005), Wood (2001), Tavakoli and Skehan (2005) and Witton-Davies (n.d.), hesitancy, as a determinant of repair fluency, should be considered a component separate from temporal aspects of fluency – speed and breakdown fluency – at least for the purpose of this study. It appears that it does not relate to fluency in the 'narrow' sense, i.e., as a dimension of L2 proficiency *distinct* from accuracy and complexity (nor does it probably contribute significantly to perceived fluency: cf. Kormos 2006).

The radar plot in figure 2 further indicates that the C1 results form a different pattern than the results from the other contexts. In some of our earlier work (Housen et al.

2011), explorative analyses using a number of general measures of global L2 proficiency and L2 complexity, accuracy and fluency produced a similar outcome. The learners in C1 obtained higher scores than anticipated on most measures, especially in the field of accuracy but also on complexity and fluency (which was reduced to Speech Rate). This was interpreted as an indication that traditional EFL teaching can be as successful, if not more successful than some instances of bilingual education in terms of both the development of global L2 proficiency and of certain dimensions of oral L2 proficiency (in particular accuracy). It was also put forward that the effect of curricular and extracurricular factors in the design of this study was outweighed by other learner-internal factors such as the age of the learners at the time of testing. The age difference between the learners in C1 and those in C2, C3 and C4 resulting from the need to control for amount of curricular exposure to the L2 across the four contexts (C1 pupils are 3 years older than the other pupils, see 'Participants' and 'Design' sections) may have confounded with the effect of L1 and L2 prominence. The more fine-grained L2 fluency analyses presented here only in part concur with the earlier findings: the presumed advantage of the context 1 learners (whether maturational or instructional) is confirmed when it comes to speech rate and repair fluency. Thus, it appears that not all aspects of fluency are equally sensitive to maturational or instructional influences: pausing-related features seem overall less affected. Once again the importance of a multi-layered approach to fluency is underscored. Research into the effect of chronological age or age-at-testing on fluency that could corroborate these findings is scarce. Findings from neuro-imaging studies suggest that there are differences in L1 fluency levels between early adolescents and late adolescents in terms of speech rate and possibly also in terms of repair fluency, due to maturational differences in brain development (Koren et al.

2005; Sauzéon et al. 2004; Martins & Andrade 2008). Pausing-related features of L1 speech are found not to vary significantly between these age groups: the maturation of the neurolinguistic system involved in this aspect of fluency appears to be functionally established early on (Martins & Andrade 2008). Notwithstanding that similar neural regions are involved in L1 and L2 processing (Perani & Abutalebi 2005; Stowe & Sabourin 2005), it remains unsure to what extent these L1 findings can be applied to L2 fluency development. It is possible (and even likely) that the age difference in our design (C2, 3 and 4 ages 9-11 vs. C1 ages 12-14) has confounded to some extent with the effect of L1 and L2 prominence when it comes to speed and repair fluency (not in terms of breakdown fluency). However, this presumed age effect cannot be observed consistently in all contrasts involving C1 as it is blended with the effects of L1 and L2 prominence. This renders it impossible to establish to what extent the advantage of the C1 learners is due to differences in the learning context, to maturational differences or even to instructional factors (EFL vs. European Schools).

Conclusion

Much like learning in general, language learning is susceptible to various learner-internal and learner-external influences. These shape the amount and nature of the learning opportunities presented to learners and the way learners exploit them. This research attempted to isolate one particular learner-external, contextual factor: we aimed to study how differences in L1 and L2 prominence in the wider learning context affect fluency in a second language. The design of this study was carefully set out to allow for a broad spectrum of language prominence conditions while still using authentic materials. The European school system constitutes a compelling research environment where contextual variation can be studied without being confounded by curricular differences. Overall, the study confirms the relevance of language prominence to L2 fluency development.

L2 prominence was found to affect speed and breakdown fluency. It was confirmed that levels of speed and breakdown fluency are overall higher in contexts with higher levels of L2 prominence. The gradient operationalization of L2 prominence (i.e., distinguishing between different levels of prominence) reveals subtle differences in L2 fluency levels between contexts that might not have become evident in a more traditional, dichotomous design. Our study also suggests that L1 prominence should be taken into consideration when operationalizing learning context. Further research on the role of L1 prominence is needed. We propose that a high level of L1 prominence can interfere with the effect of L2 prominence, resulting in lower levels of L2 fluency, at least at the level of speed fluency and silences. Fluency was approached as a multilayered concept and it was operationalized in three distinct dimensions: speed, breakdown and repair fluency. Overall, our results justify this

multidimensional approach. Repair fluency behaves differently from the other two dimensions, and doubts were cast over the extent to which it expresses fluency in the 'narrow' sense, as it was defined for this study.

We hope that this study contributes to the understanding of how the learning context may affect learning outcomes and, more specifically, how we can go about studying this effect. We have stressed the importance of a more detailed description and operationalization of learning context and have attempted to take a step in this direction.

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