

## **Bilingual education and L3 learning: metalinguistic advantage or not?**

RUTGERS, Dee and EVANS, Michael

Available from Sheffield Hallam University Research Archive (SHURA) at:

<https://shura.shu.ac.uk/34755/>

---

This document is the Published Version [VoR]

### **Citation:**

RUTGERS, Dee and EVANS, Michael (2017). Bilingual education and L3 learning: metalinguistic advantage or not? *International Journal of Bilingual Education and Bilingualism*, 20 (7), 788-806. [Article]

---

### **Copyright and re-use policy**

See <http://shura.shu.ac.uk/information.html>



# International Journal of Bilingual Education and Bilingualism

ISSN: 1367-0050 (Print) 1747-7522 (Online) Journal homepage: [www.tandfonline.com/journals/rbeb20](http://www.tandfonline.com/journals/rbeb20)

## Bilingual education and L3 learning: metalinguistic advantage or not?

Dieuwerke Rutgers & Michael Evans

**To cite this article:** Dieuwerke Rutgers & Michael Evans (2017) Bilingual education and L3 learning: metalinguistic advantage or not?, International Journal of Bilingual Education and Bilingualism, 20:7, 788-806, DOI: [10.1080/13670050.2015.1103698](https://doi.org/10.1080/13670050.2015.1103698)

**To link to this article:** <https://doi.org/10.1080/13670050.2015.1103698>



© 2015 The Author(s). Published by Taylor & Francis.



Published online: 27 Oct 2015.



Submit your article to this journal [↗](#)



Article views: 8187



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 8 View citing articles [↗](#)



# Bilingual education and L3 learning: metalinguistic advantage or not?

Dieuwerke Rutgers<sup>a,b</sup> and Michael Evans<sup>a</sup>

<sup>a</sup>Faculty of Education, University of Cambridge, Cambridge, UK; <sup>b</sup>Facultad de Educación, Universidad de Las Américas, Quito, Ecuador

## ABSTRACT

Metalinguistic skills are highlighted in the literature as providing bilinguals with an advantage in additional language (L3) learning. The extent to which this may apply to bilingual education and content-and-language-integrated-learning settings, however, is as yet little understood. This article reports on a study exploring and comparing the metalinguistic skills of Dutch secondary school pupils enrolled in a Dutch–English bilingual and a regular programme as captured in think-aloud protocols and retrospective interviews related to an individual picture-description task in German. The findings indicate that clear metalinguistic advantages for the pupils in the bilingual stream could not be established. However, the study found evidence of changes in pupils' L3 processing related to the functioning of the multilingual mental lexicon, a more functional awareness of language, and the pupils' attitudes towards language learning. These findings were able to shed light on the nature of metalinguistic skills – highlighting the need for a more precise definition in particular – while simultaneously revealing the limitations of the concept for understanding multilingual language processes in bilingual education settings.

## ARTICLE HISTORY

Received 7 August 2014

Accepted 28 September 2015

## KEYWORDS

Bilingual education; CLIL; L3 learning; metalinguistic skills; language awareness; multilingual proficiency

## Introduction

L3 learning refers to 'the acquiring of a non-native language by learners who have previously acquired or are acquiring two other languages' (Cenoz 2003, 71). Although L2 learning is itself a multi-faceted phenomenon, the various routes that L3 learning can take (e.g.  $L1 \rightarrow L2 \rightarrow L3$ ,  $L1/L2 \rightarrow L3$  or  $L1 \rightarrow L2/L3$ ), combined with the diversity of language learning contexts, results in a complex interplay of individual learner differences, and the psychological and psycholinguistic effects associated with particular language interactions and with specific (previous and current) language learning environments (Herdina and Jessner 2002).

Research in L3 learning has shown that bilinguals often achieve better additional language learning results than monolinguals (Brohy 2001; Keshavarz and Astaneh 2004); this is often attributed to bilinguals' metalinguistic skills (e.g. Bialystok 2001) as an important factor contributing to a qualitative change in the L3 learning process (Jessner 2008a; De Bot and Jaensch 2015). These findings offer exciting opportunities for L3 learning within bilingual education programmes, an increasingly common phenomenon in Europe, where a rise in the number of schools offering bilingual and content-and-language-integrated-learning (CLIL) programmes has occurred in the last 10 years (Coyle, Hood, and Marsh 2010). The higher levels of second language (L2) proficiency and increased

**CONTACT** Dieuwerke Rutgers  [dieuwerkerutgers@gmail.com](mailto:dieuwerkerutgers@gmail.com)

© 2015 The Author(s). Published by Taylor & Francis.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

frequency of L2 use that distinguishes pupils attending bilingual education from those in regular education may mean that they have reached the threshold (Cummins 1979) needed for a metalinguistic advantage in L3 learning.

Furthermore, bilingual education is not only characterised by increased levels of L2 proficiency and use, but also by specific pedagogical choices. In particular, CLIL adopts 'an approach which combines learning language with using language to learn' (Coyle 2007, 552), thereby combining immersion-based, implicit language teaching with an explicit focus on language achieved through negotiation of meaning (e.g. Foster and Ohta 2005) and various forms of feedback (De Graaff et al. 2007). The assumption that this learning context can lead to the development of different language skills than those traditionally found in foreign language (FL) classrooms, provides the basis for comparing the skills of CLIL learners against existing notions of metalinguistic skills in the literature, as well as for exploring the impact of CLIL on additional FL learning. In a bid to examine these issues, the present study compared the language processes of Dutch secondary school pupils enrolled in a Dutch–English bilingual and a regular programme when using German as an L3 after Dutch and English.

### Perspectives on metalinguistic skills for L3 learning

Identifying metalinguistic advantages for specific groups of L3 learners is complicated by the lack of agreed-upon definitions of metalinguistic phenomena in the literature. Metalinguistic awareness has been defined as 'the capacity to reflect upon and manipulate linguistic features, rules or data' (Falk, Lindqvist, and Bardel 2015, 229). The term metalinguistic knowledge, in turn, has been used to refer to 'explicit knowledge of linguistic structure' (Bialystok and Barac 2013, 193). However, whether explicit knowledge about language is necessary to reflect upon or manipulate language, or how metalinguistic awareness – as enacted in metalinguistic skills – relates to metalinguistic knowledge, is not always clear.

Bialystok's (2001) Analysis and Control framework states that metalinguistic awareness involves formal analysis (i.e. knowledge about language) and cognitive control or 'the level of attention and inhibition recruited during cognitive processing' (14–15). However, Bialystok also indicates that the 'two cognitive processes are identified and implicated in all aspects of language processes' (130). The question thus becomes, at what unique combination(s) of analysis and control does language processing become metalinguistic? More precisely, although researchers seem to agree that the starting point of metalinguistic skills lies in *awareness*, the enactment of a controlled mind 'in which an individual has undergone a specific subjective experience of some cognitive event or external stimulus' (Tomlin and Villa 1994, 193), authors disagree about the degree of awareness required for a particular language skill to be labelled as 'metalinguistic' (cf. Gombert 1992; Cenoz 2008).

This debate is particularly relevant to the current study. Firstly, the increased L2 proficiency and use may mean that the pupils in the bilingual programme have reached a sufficient level of bilingualism to benefit from enhanced cognitive control (Bialystok and Viswanathan 2009). This may lead to a level of language awareness that leans more towards the 'controlled attention' rather than to the 'analysis' end of the scale (Bialystok 2001). Secondly, the higher levels of L2 proficiency, L2 use, and automatised explicit skills that characterises language learning in bilingual education could result in a capacity to reflect upon and manipulate linguistic features that is potentially more tacit in nature, reflecting 'the elusive quality of linguistic experience' (Van Lier 2002, 148) rather than learned metalinguistic knowledge. Here the debate about the definition of metalinguistic skills touches on the debate surrounding what it means to be a 'good language learner' (e.g. Naiman et al. 1978), questioning whether 'the good language learner is ... necessarily the same as the experienced language learner' (Kemp 2007, 242) and how language learning expertise in multilinguals relates to explicit and implicit skills, respectively (Nation and McLaughlin 1986). Thus, understanding the impact of bilingual education on L3 learning may depend on capturing variations associated with different levels of language awareness. Answering the question in the title of this article, however, requires a clearer definition of metalinguistic skills to be sought. The aim of this study was to do both.

## Dutch–English bilingual education and German as an L3 in the Netherlands

Dutch–English bilingual education follows a CLIL model at secondary level in which a minimum of 50% of classes are offered in English. Secondary education in the Netherlands is tiered, and bilingual education is most commonly offered at the highest tier known as VWO (University Preparatory Education),<sup>1</sup> which involves a total of six years of schooling (ages 12–18). This was also the tier in which the present study was conducted. The main objective of the bilingual programme is for pupils to reach a level of English equivalent to B2 on the Common European Framework of Reference for Languages (CEFR) by the end of year three. After year three, schools can choose whether they continue to provide a bilingual programme in years 4–6, in which case they generally prepare their pupils for the International Baccalaureate certificate for English A Language and Literature.

Dutch–English bilingual education is not only characterised by increased levels of L2 exposure and use, but also by specific pedagogical choices. Firstly, the bilingual programme emphasises language learning through language use, and the ‘continuous insistence on correct communication is avoided’ (Admiraal, Westhoff, and de Bot 2006, 76). Secondly, the programme not only impacts on the teaching of content classes, but also affects L2 pedagogy in the English language classes, particularly in years 4–6. As opposed to mainstream FL classes, which in this study were found to be characterised by direct instruction and overt, textbook-based teaching of language, L2 pedagogy in the bilingual programme sees a gradual fading out of grammar teaching in favour of literary analysis as the basis for the development of academic language skills, thus increasingly integrating content into the language lessons.

On the one hand, L2 learning within Dutch–English bilingual education is thus characterised by stronger communicative and implicit learning processes than usually found in FL programmes, without overt metalinguistic skills development. On the other hand, one of the tenets of CLIL is that the negotiation in and around language, that occurs in talk around content and through various forms of teacher feedback (De Graaff et al. 2007), can result in metalinguistic processes such as ‘pushed output’ (Swain 2000), ‘noticing the gap’ (Swain and Lapkin 1995), ‘focus on form’ (Anton 1999) and ‘self- and other-corrections’ (Ohta 1995). However, despite increased research aimed at understanding the effect of CLIL on L2 development (e.g. Dalton-Puffer 2008), there still exists a ‘well-documented paucity of research in this area’ (Pérez-Cañado 2012, 315). It is, thus, unclear to what extent Dutch–English bilingual education enhances pupils’ metalinguistic skills, and more specifically to what extent it influences their use of metalinguistic skills in L3 learning.

The overwhelming preference for English within the bilingual programmes offered in the Netherlands<sup>2</sup> reflects the high status of this language. English is also a compulsory subject throughout secondary education in all programmes. Yet, other foreign languages too have an important place within the Dutch education system: French and German are compulsory from years one and two, respectively, up until year four. From year four onwards (15/16 years old), the learning of one additional foreign language alongside English remains compulsory. Many choose German because it is typologically more similar to Dutch than French and therefore perceived as easier to learn. However, a key difference between German on the one hand, and Dutch and English on the other, is German’s inflectional ending for gender and case which poses a particular metalinguistic challenge for the learning and teaching of German for speakers of these languages. The impact that Dutch–English bilingual education may have on metalinguistic skills in the learning of German is, thus, also little understood because of differences inherent to the languages.

## The study

The current study was part of a case study exploring the impact of bilingual education on the learning of German as a third language as compared with a regular Dutch education programme. An additional objective was to develop deeper understanding of the nature of metalinguistic skills in multilingual language learning in the Dutch setting and reflect upon possible implications in

broader settings. The study involved a secondary school in the Netherlands, with a Dutch–English bilingual stream (BS) alongside its monolingual Dutch stream. Data were collected over nine months, of which the first three were dedicated to developing rapport, immersion in the context, and to selecting the pupils that were to take part in the study. Six pupils, three from the BS and three from the regular stream (non-BS), were then followed over six months, observed in their FL classes, interviewed, and monitored during a selection of specifically designed think-aloud German tasks combined with retrospective interviews. While the richness of the data lends itself to longitudinal analysis, the focus of the study was on documenting instances of metalinguistic skills in L3 learning, as well as differences in the FL classroom interactions as framing pupils' metalinguistic development. The findings presented in this article stem from a comparison of the language processing of the BS and non-BS pupils in one of the think-aloud German tasks.

### ***Selection of participants***

Given the time needed for the effects of bilingual education on L3 learning to become apparent, the study took place in year four. This meant that the pupils were 15/16 years of age; had had three years of English and two years of German at secondary level; had chosen German as their second FL alongside English; and that the BS pupils had a B2 or higher on the CEFR for English. Importantly, whereas the BS and non-BS pupils attended different English classes, they attended the same classes for German. The pupils' language background and exposure to languages, as well as their motivation for languages, were established using a questionnaire and interviews. Additionally, the pupils were selected based on their general and language aptitude, as reflected by their scores on a placement test taken at the end of primary school and their marks for languages in year 1–3. Each group (BS/non-BS) consisted of two female and one male pupil. Informed consent was obtained from the pupils and their parents, and participants were assured of the confidentiality of their data and their right to withdraw from the study.

### ***Materials and procedures***

Instruments to measure metalinguistic skills are controversial. Metalinguistic data have traditionally been elicited using grammaticality judgement tasks (Chaudron 1983). However, the validity of these tasks as a measure of learner competence has been questioned (Jessner 2006). Moreover, they can potentially bias learners who developed their language skills through a grammar rather than a communicative approach to teaching (Renou 2001). The MAT (Metalinguistic Abilities Test) developed by Pinto (1995) offers a more comprehensive test, but is not well suited 'to gain insight into learner's controlled mental processes during language use' (Roehr 2006, 181) and therefore inappropriate for understanding metalinguistic skills in L3 use. An alternative method for eliciting metalinguistic data, based on concurrent verbal report, was therefore chosen.

The pupils' L3 processes and metalinguistic skills were captured using an individual Picture Description Task (iPDT) whereby the pupils were asked to think aloud while writing out the story depicted in a six-picture cartoon that was matched to their German proficiency level. The task was accompanied by a think-aloud protocol based on Ericsson and Simon (1993), Duncker (1926, quoted in Ericsson and Simon 1993, 81) and Córdón and Day (1996), and was audio-recorded. The recordings of the iPDT were used during retrospective interviews which drew on a stimulated recall procedure by Gass and Mackey (2000) and in which the pupils explained their activities. The task and retrospective interviews were administered in empty classrooms within the school and outside of class hours in order not to interfere with valuable learning time.

Working within a socio-cognitive perspective and building on analytical frameworks by Kumpulainen and Mutanen (1999) and Wells (1999), the procedure for examining the pupils' metalinguistic skills combined a *language activity analysis* with a *functional analysis* as applied to the learner's utterances in the think-aloud protocols. Researchers who have used verbal reports to understand

metalinguistic processes have emphasised the value of exploring metalinguistic expressions or comments (e.g. Jessner 2005). They explain that speech utterances accompanying language processing reflect evaluations, express doubts or certainty about linguistic items, and awareness of transfer or simplification, and can thus provide insight into cognitive stances as reflecting metalinguistic awareness or knowledge.

The codes capturing the language-related activities (LRAs), defined as *socio-culturally ordered processes in which focus on language emerges or is achieved*, developed inductively from the data through identifying two parameters: the aspect of language focused on (i.e. the target feature (TF)) and what is done in relation to this aspect (i.e. the target process). The broader TF categories of *lexicon*, *grammar*, and *discourse* provided structure to the analysis, within which target process categories such as *phonological* (i.e. word [form] derivation through the use of sounds), *relations between languages* (i.e. word derivation through a cross-linguistic analysis), and those processes reflecting a *morphological* or *morpho-syntactical* understanding of language (e.g. affixing, compounding, pluralisation or declension, and conjugation), were explored. The codes capturing the socio-cognitive language functions (SCLFs), defined as *the functions of the pupils' utterances as reflecting a cognitive process embedded within a socio-culturally ordered and situated process*, were grouped under the categories *metacognitive* (explaining, informing, evaluating, revising, questioning), *cognitive* (focusing attention, repeating), *ambiguous* (suggesting, thinking time), *task completion* (composing, reading, organising environment, organising task completion), and *affect* (certainty, uncertainty, other). The metacognitive nature of an SCLF was determined by the level of awareness deemed to be required for the socio-cognitive act. The category *ambiguous* emerged as it was difficult to determine the nature of the processes occurring during 'thinking time' and those preceding a suggestion.

This multilevel procedure was designed to capture different levels of awareness within pupils' language behaviours, while simultaneously allowing for patterns related to pupils' focus on specific language aspects to be explored. The retrospective interviews were placed alongside the think-aloud protocols to aid the identification of the pupils' LRAs and assist in determining the (meta)cognitive nature of these activities. Coding was done using the software NVivo (version 9.0), after which frequency data at both the level of the LRA and the level of SCLF × LRA (i.e. double coding queries) were extracted for each pupil and further calculated in MS Excel. Although patterns in the data stemmed from these quantitative results, differences between the two groups of pupils were established and confirmed through a qualitative analysis of the BS and non-BS extracts coded, and by placing the quantitative results against the contextual data collected in relation to each pupil.

Given the complex nature of data that is both think-aloud and multilingual, the transcription and data presentation procedures were carefully considered. The transcription symbols relevant for reading the extracts in this article are presented in Table 1. The protocols were analysed in the language of the utterances, and only translated to English for reporting purposes. Utterances in German are not translated to distinguish between the language of mediation and the target language of the task. Where relevant to understanding the activity, translations in English or Dutch are provided in italicised brackets (*[Eng: word]* or *[Dutch: word]*). Language switches are indicated by language codes where (G) = German, (D) = Dutch, (E) = English and (U) = unknown. The latter category was included in response to what De Angelis (2005) calls 'the identification problem' concerning non-native lexical transfer in multilingual processing, and captures words or sounds for which it was uncertain whether they could be labelled as Dutch, German or English.

**Table 1.** Transcription symbols.

↑ = rising intonation at end of utterance	(.) = micro-pause
↓ = falling intonation	= interrupted by the next line
*words* = boundaries of a voice, pitch or style change	- = uncompleted word
▼ = less volume	▲▲ = greatly increased volume
▲ = more volume	▼▼ = greatly decreased volume
(2) = pause in seconds	☺ (2) ☺ = laughter in seconds



## Results

### Lexicon

A comparison of the lexicon-related activities of the BS and non-BS pupils revealed a different engagement with German lexical items in the BS group. Firstly, the analysis of the socio-cognitive functions of the pupils' utterances (i.e. the SCLFs) revealed a substantially higher number of utterances reflecting a metacognitive function within the BS pupils' processing of German nouns, verbs, and adjectives (i.e. NVA), relating mainly to differences in the two socio-cognitive functions of 'evaluating' and 'revising' (Figure 1(a)). In contrast, the discourse framing the non-BS pupils' lexicon-related activities either exhibited more utterances and/or pauses reflecting taking time to think, such as 'let's think'; 'let's see'; 'well', 'ehm' (Figure 1(b)), or did not exhibit the same amount of evaluative and revision utterances as the lexicon-related activities of the BS pupils. This suggests that whereas the non-BS pupils took time to reflect on and access their previously learned vocabulary knowledge, the BS pupils' discourse reflected stronger online monitoring of language, in which they made initial suggestions and revised them if necessary (with or without evaluative statements) in a trial-and-error kind of way.

These differences are clearly exemplified by the following extracts from Sarah (non-BS) and Frances (BS):

#### Extract 1 Sarah (non-BS)

(D) Ehm (1) they walk (.) away, perhaps home (1) ehm (1) ▼let's see, they (G) sie || ▲(D) Father (G) und Sohn↑ (.) Vater (1) und (1) Sohn↑ (1) (D) eh go for a wander (.) ▼'s eh ▲what was that again↑ Or walk↑ (2) eh wander, let's think, it looked like (1) ▼let's see (.) ▲ (G) sie sie (.) (D) ▼ehm (.) what was it again (.) ehm (.) let's think (2) (G) sie || ▲raden (D) is cycling↑ (1) (G) spatz- spatzieren (D) it was, I think↑

#### Extract 2 Frances (BS)

(D) The boy (.)'s very very proud↑ (2) ▼proud (1) the boy finds it (1) a lot of fun↑ finds it very very (2) Well, yes, he's very very || proud of his fish, but what is 'proud'. ▼▼The boy f- || (2) (E) Proud pr-||wha (1) (D) The boy 's very very (2) ▼▼(U) trot-z-t (1) ▲(D) no idea the boy f- || well finds it, at least, a lot of fun so d- || (.) (G) der (.) Jungen (3) ▼▼ (D) and then (2) ▲ehm (2.5) ▼▼▼proud (1) ▲finds it a lot of (1.5) mja finds it all a lot of fun (.) ▼I think, the boy (.) (G) findest (2) ▼▼findet (.) (D) without s (2.5) ▲ehm (3) ▼(G) es sehr (2) ▼▼toll

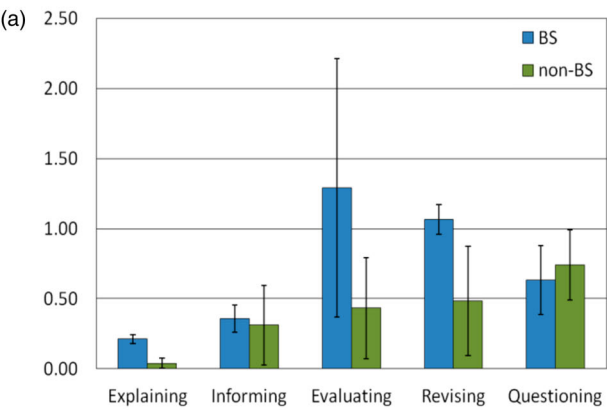
The process by which Sarah arrives at the German equivalent of the Dutch word 'lopen' [*Eng: to walk*] is mediated by her awareness that she had previously learned the German word for 'wandelen' [*Eng: to go for a walk/wander*]. Sarah, thus, directs her story towards previously learned German vocabulary and matches her text to her abilities in German. Frances, on the other hand, accessed a more general, cross-linguistic knowledge of lexical form to 'create' the word to express the meaning embedded in the picture. Keen to use the word 'trots' [*Eng: proud*] to describe the emotions of one of the characters, Frances realises she does not know the word in German. She first tries an alternative, but as she already used this alternative (i.e. 'finds it a lot of fun') before, she returns to her original idea and tries to derive the German firstly through English (i.e. proud) and secondly by foreignising the Dutch 'trots' (i.e. giving it more German features). Figure 2, which presents the form-related LRAs that the pupils engaged in during the processing of NVA, confirms that this process of lexical creation was particularly characteristic of BS pupils' processing of German. This is visible in the difference in the pupils' understanding of affixing (Figure 2 (a)), as simultaneously reflecting an understanding of word type (nouns, adjectives, verbs, adverbs) (Figure 2 (d)). The latter pertains to the pupils' understanding of how words can be derived and built from other word types (i.e. nouns from verbs; adjectives from nouns; adverbs from adjectives) through the use of affixes.

However, the analysis of the form-related lexical activities also highlighted a difference in the role of phonology within the processing of lexical items (Figure 2 (f)). This refers to the retrieval of lexical items through the use of different sounds (i.e. approximation) and reveals a feeling-of-knowing and tip-of-the-tongue (TOT) state. Interestingly, although phonological processes were also observed in

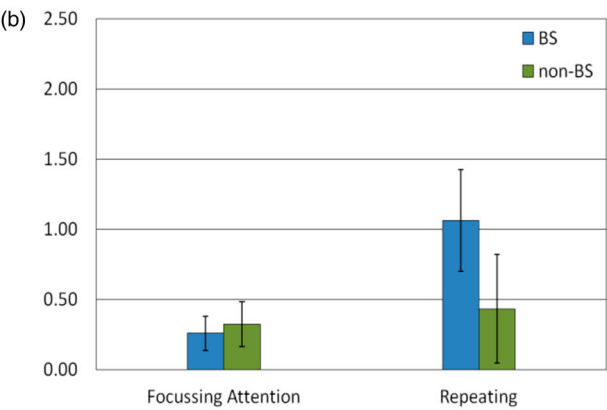


# Understanding of Lexis (NVA)

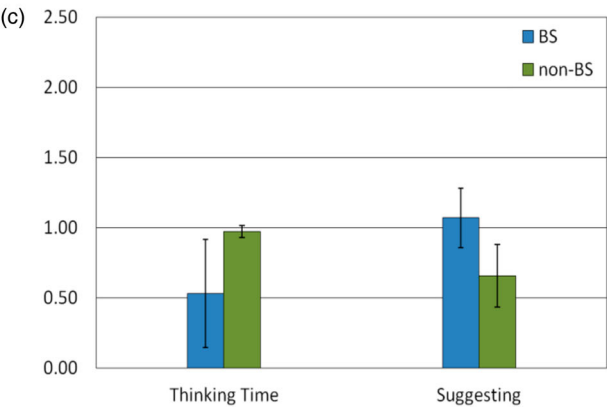
## Metacognitive SCLFs displayed within the Lexis (NVA) activities



## Cognitive SCLFs displayed within the Lexis (NVA) activities

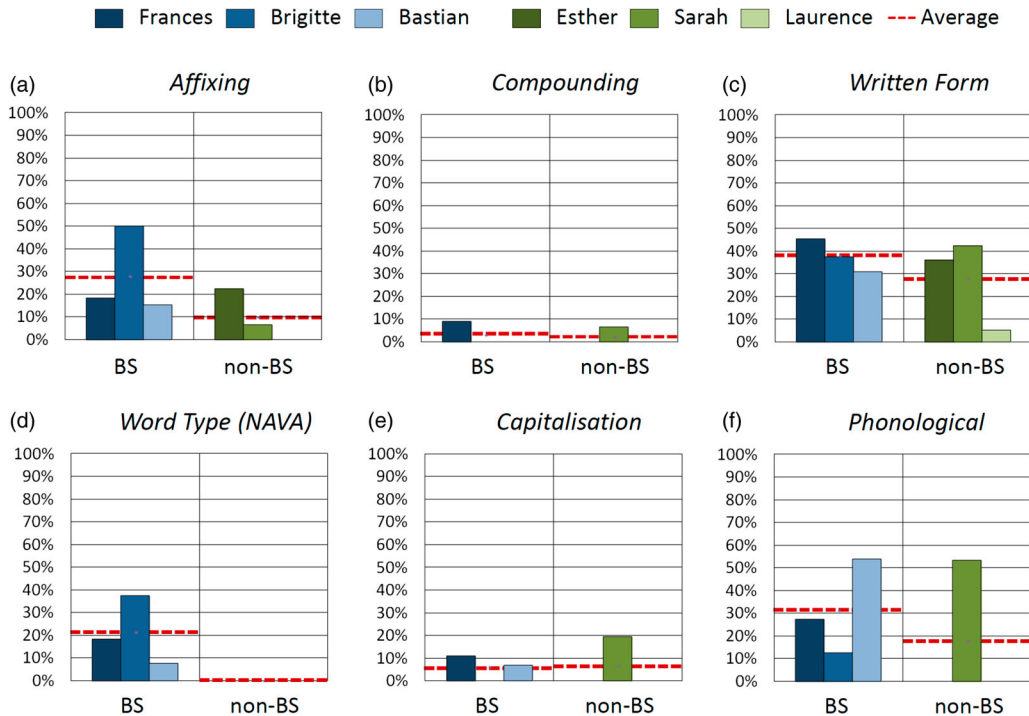


## Ambiguous SCLFs displayed within the Lexis (NVA) activities



**Figure 1.** Average number of SCLFs (grouped metacognitive/cognitive/ambiguous) per lexis (nouns/verbs/adjectives) activity per school type (BS/non-BS). Error bars show  $\pm 95$  confidence intervals.

## Understanding of Lexis (Nouns, Verbs, Adjectives) Form



**Figure 2.** Understanding of lexis (NVA) form per pupil (grouped BS/non-BS). The percentages on the Y-axis reveal the total processes as a fraction of the total number of form-related activities pertaining to lexis (nouns/verbs/adjectives).

Sarah's (non-BS) think-aloud protocol, these processes occurred within the German language only. Those of the BS pupils, on the other hand, were frequently observed to span across languages, as is visible in the following two extracts from Bastian's think-aloud protocol:

### Extract 3

▲freut (.)▼vrij- || vrolijk, vr-|| vro- || frohen, froht. (1) Met 'k denk umlaut freut† Ja frohlich (.) /  
▲(G) freut (.)▼(D) vrij- || vrolijk [Eng: happy], vr-|| vro- || (G) frohen, froht. (1) (D) With, I think, (G) Umlaut freut † (D) yes (G) frohlich (.)

### Extract 4

▼▼hmm door (4.5) bei, bei der (1) zür ▲door zür || zür/  
▼▼(D) hmm by [Dutch: door] (4.5) (G) bei, bei der (1) zür ▲(D) by [Dutch: door](G) zür || zür

Extract 3 reveals how Bastian gains access to the German word 'fröhlich' [Eng: happy] through approximation involving both Dutch and German sounds, as well as his understanding of word type and affixing (i.e. fröhlich [Eng: happy] from 'frohen' (sic: freuen) [Eng: to gladden, make glad]). Extract 4 reveals the cross-linguistic retrieval of a preposition that is affected by Bastian's English, with the German 'bei' being a translation of the English 'by' [Dutch: door]. In monitoring this interference, Bastian works from Dutch at a phonological level, with 'door' and 'zür' being similar in sound. The correct preposition is 'durch', which interestingly is also similar in sound to 'zür'. The higher level of TOT states in the BS group, and cross-linguistic TOT states in particular, reveals an important difference in lexical access: while the within-language search for words by the non-BS pupils reflects the accessing of their German lexicon as developed within foreign language learning processes, the across-language retrieval of German lexical items by the BS pupils reflects the accessing of a bi- or multilingual lexicon.

Thus, the higher levels of metacognitive speech functions in the lexicon-related activities of the BS pupils were found to stem from the specific interaction between the BS pupils' stronger focus on the meaning they wanted to convey than on conveying meaning in German, and the functioning of the bilingual mental lexicon. This resulted in the monitoring of language more synchronous with cognitive processing and at a level closer to the instantiation of language (i.e. more 'online'). And, although some of the revisions revealed the BS-pupils' ability to play with word form based on cross-linguistic metalinguistic knowledge, the difference in the BS and non-BS pupils' approach to task makes it difficult to identify an advantage in this area. Moreover, although the lexicon-related activities of the BS pupils exhibited high levels of metacognitive control, the analysis found that many of the evaluations and revisions may not have required knowledge *about* language, thereby questioning the metalinguistic nature of these activities.

## Grammar

The analysis of the grammar-related activities (i.e. declension and conjugation) highlighted that although there was little difference between the BS and non-BS pupils in the amount of focus on grammar, they differed in the extent to which the pupils had access to, or accessed, the metalinguistic knowledge needed to complete the declension and conjugation processes. This access was lower in the BS group, and was affected by differences in the pupils' apparent 'willingness' to engage with grammar.

Figure 3 reveals that the conjugation process was characterised by a difference between the BS and non-BS pupils that was similarly observed in relation to lexicon, namely high levels of evaluating and revising in the BS group (Figure 3 (a2)). Higher levels of phonological processes were also found in the BS pupils' conjugation activities, with the following extracts from Esther (non-BS) and Frances (BS) highlighting these differences particularly well:

### Extract 5 Esther (non-BS)

(D) Wants Father (1) ▼(G) wo- wi- (.) ▲(D) eh to want, ▼is, let's think (.) also just || if it is also just 'to want'↑

### Extract 6 Frances (BS)

(D) wants the father↑ (2)▼(G) ich will ich wollte wollte, ich will (2) ▲wollte (3) (D) ehm

These extracts show how Esther (non-BS) processed the modal verb 'to want' through explicitly taught rule-application, initiated by the phrase 'let's think', while Frances (BS) engaged with it phonologically, using trial-and-error and approximation. This, again, reveals a stronger online monitoring for the BS pupils, in which a greater reliance on procedural skills could be observed, and in which the monitoring of language use occurred at a lower level of abstraction (i.e. in a more intuitive, tacit manner).

The analysis of the declension-related activities revealed the BS pupils' greater reliance on language intuitions to be intertwined with motivational issues. A comparison of the following extracts from Sarah (non-BS) and Brigitte (BS) highlights this well:

### Extract 7 Sarah (non-BS)

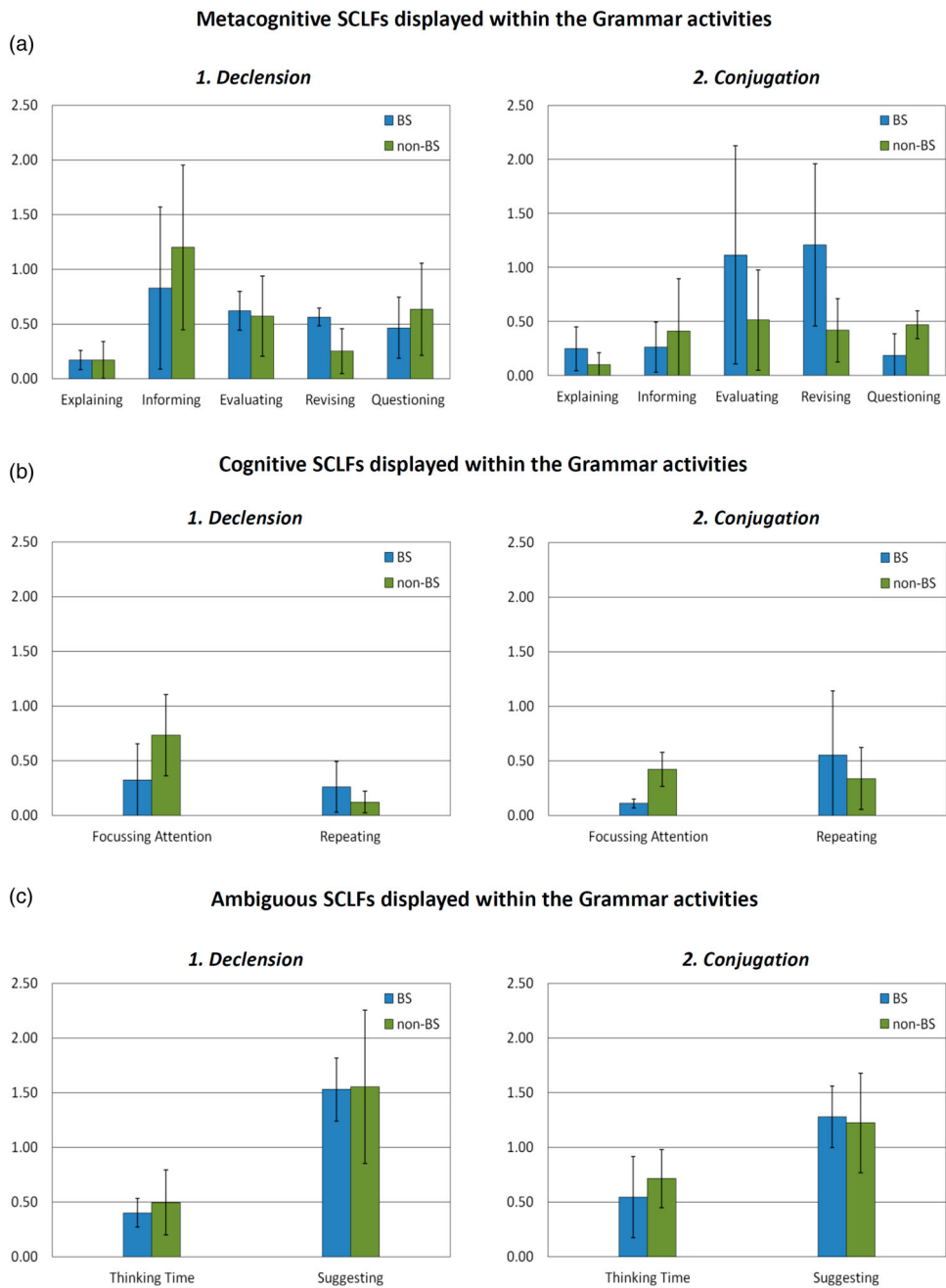
(G) von zu aus || (D) accusative case it is then, (G) mit nach gegen ohne um↑ (D) Um is accusative case↑ ▲(G) Um (.) der Fisch (D) der accusative case, is ▼-ts see (1) (G) der dem den ▼▼der dem den der ▲(D) der I think, um der (1) Fisch (2)

### Extract 8 Brigitte (BS)

(G) sie haben eine (.) (D) a (U) Visch (G) gefangen. (1) Sie haben ▼ein Fisch gefangen. (2) Ein Fisch, ein Fisch, (D) is that it ↑ ▲(D) Has it got a gender, \*I seriously have no idea↑\*

Sarah's extract, as representative of the non-BS group, reflects willingness to access and use the meta-language and grammatical rules developed in German class. The extracts of Brigitte, in contrast, reveal an awareness of case and gender, yet also frustration and lack of motivation in engaging

Understanding of Grammar (Declension and Conjugation)



**Figure 3.** Average number of SCLFs (grouped metacognitive/cognitive/ambiguous) per grammar (declension/conjugation) activity per school type (BS/non-BS). Error bars show  $\pm 95$  confidence intervals.

with declension. Bastian’s retrospective interview revealed how the origins of this interplay between motivation and procedural skills may lie in the BS pupils’ previous language learning experiences: ‘(D) in general within the whole text, I was not really focusing on that, on the ehh cases’, for which he gave the following explanation:

B: (D) Hmm (.) well, yes, that I that a littl--|| that I am perhaps, in some way, a little too lazy for it ☺ or something ☺

R: (D) ☺ Ok ☺

B: that I just do not really feel like doing all of that and then||

R: yes ☺

B: then, for example, in Dutch you do not have to think about it or something, or with it, in, in, in English also not, I think. So then you just write everything down and then all of a sudden you have to do \*eh, der, der or der\*, I don't know

Although motivation plays a major role, it can be questioned whether Bastian genuinely considers himself to be 'too lazy for it', based on how he moderates this statement by adding 'in some way' and '☺ or something ☺'. Secondly, the extract highlights clearly how Bastian's *second* language learning process appears to affect the learning of German as a *foreign* language, relating to the fact that in English, like in Dutch, the BS pupils are able to express meaning without explicit focus on grammar or metalinguistic mediation.

The analysis of the grammar-related activities, thus, reveals that explicit grammar strategies featured less strongly within the BS pupils' repertoire of foreign language use, and the motivation to re-engage with language in this explicit way was also lower. Moreover, it highlighted how monitoring of language can occur at different levels of awareness, with language intuitions and procedural skills playing a specific mediating role in L3 use. These language intuitions may not necessarily relate to declarative knowledge about language, but can find their basis in linguistic experience or, alternatively, within a 'trace' of metalinguistic knowledge (i.e. knowing that you know about a linguistic item) that is not fully available during L3 text production.

## Discourse

Figure 4 reveals the differences between the BS and non-BS pupils' discourse-related activities to consist of three components: (1) deeper understanding of the interaction between lexical choice and genre within the BS group (Figure 4 (1b)); (2) the influence of the BS pupils' writing skills in English on how they created coherence in their German story through the specific use of adverbs (Figure 4 (2a)); and (3) that the non-BS pupils displayed a more 'conventional' and explicit understanding of genre as captured in 'genre other' (Figure 4 (1c)), this being reflected in statements like *'Ehm (3.5) yes, then I sh'd really try to think of a nice final sentence (3.5)'* (Sarah, non-BS).

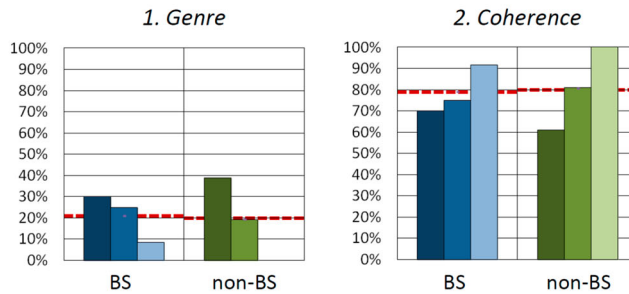
Frances's (BS) activity in which she tried to retrieve the German word for 'proud' (see extract 2) provides an example of the LRAs in which the BS pupils expressed their understanding of the relationship between lexical choice and genre. Frances's disappointment with having to use the phrase 'findet es toll', which she had already used before, rather than the actual word 'proud' is visible in this extract. Her verbalisations reflect an awareness that the repeated use of the same word will affect the depth of their story (genre). Although the non-BS pupils also struggled to find words, these instances were less frequent, and the pupils appeared to accept them as a normal part of writing in a foreign language of limited proficiency. Moreover, they were content to use the same word repeatedly.

The BS pupils' use of adverbs to create coherence within the text was found to stem from their advanced English writing skills. This becomes apparent through a qualitative analysis of the extracts presented in Table 2. Firstly, a comparison of the think-aloud protocol data with what the pupils actually wrote down (i.e. written text) reveals a sharper contrast between the planning and the final text in the non-BS group, with Bastian's extract in particular revealing an ambitious approach in which the coherence of the story takes precedence over the correctness of the German used. Secondly, as a comma is not used after introductory words in Dutch or German, Brigitte's use of a comma after

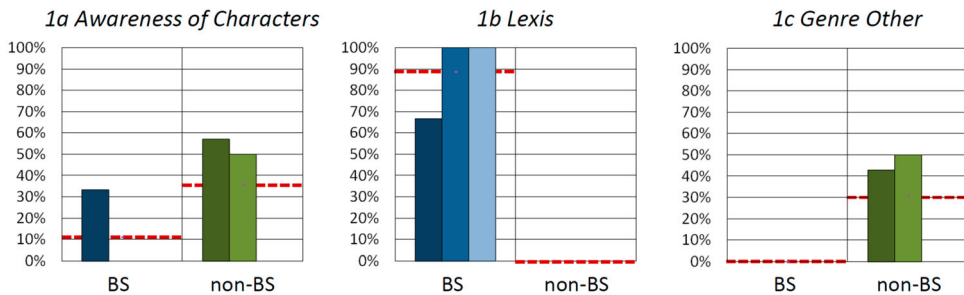
## Understanding of Discourse

■ Frances ■ Brigitte ■ Bastian ■ Esther ■ Sarah ■ Laurence --- Average

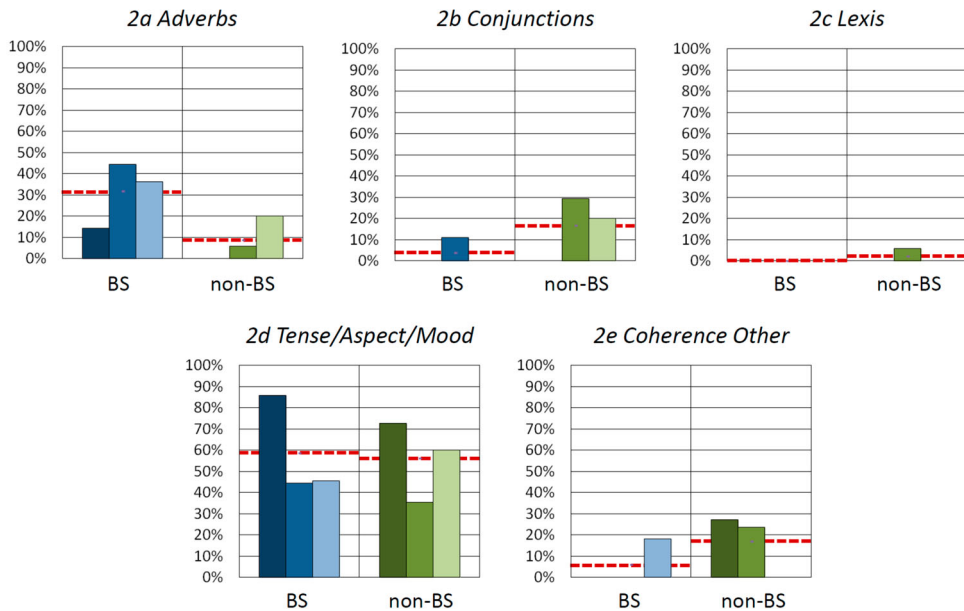
### Understanding of Discourse per Target Feature (Grouped)



### Understanding of Discourse Genre



### Understanding of Discourse Coherence



**Figure 4.** Understanding of discourse per pupil (grouped BS/non-BS) per TF. The percentages on the Y-axis reveal the total activities as a fraction of the total number of coded activities within discourse (genre/coherence) and discourse genre (awareness of characters/lexicon/other) and discourse coherence (adverbs/conjunctions/lexicon/etc.), respectively.

**Table 2.** Extracts revealing the differences in the BS and non-BS pupils' use of adverbs to create coherence in their texts.

School type	iPDT TAP (translation)	Written text
BS	<p><i>Bastian (BS):</i> ▼Eh (1) ▲and then suddenly they catch a fish, then (1), then they suddenly get lucky↑ (2) ▼▼hmm ▲suddenly (2) ▼▼▼'s eh (1.5) and now ▲ after a couple of hours they suddenly are lucky ↑ (.) they catch a fish, what is 'to catch a fish'↑ (.)▼▼▼hmm↑ (1) well (2.5) eeeh (G) na eh auf auch (1.5) ▲ nach einige Stunden ↑ (D) yes, (G) nach (2) ▼▼einige Stunde (3) (D) have they finally    (G) ei-eh (1) (D) so y' (D/G) eindelijk (D) eh (1) have they here (.) ▲(G) endlich↑(.) (D) yes.</p> <p><i>Brigitte (BS):</i> (D) now they are   (G) jetzt (2) laufen sie (3.5) ahm (3) *zu Hause* (1) (D) towards home</p>	<p><b>Nach einige Stunden</b> haben sie <b>endlich</b> eine Zander gefangen</p> <p><b>Jetzt</b>, laufen sie nach Hause</p>
Non-BS	<p><i>Esther (non-BS):</i> ▲(D) Ehm (.) and then ehm (3) eh so then they go back to throw the fish back ↑ (2) eh (.) well and that is probably just on the same day coz a fish would not last that long in a bucket, I think ↑ that would be a bit sad for the fish ↑</p>	<p>Max und Thomas laufen zurück zum Ufer</p>

'jetzt' reveals English to be present within the BS pupils' story writing skills, while the extract simultaneously reveals this way of constructing sentences to be procedural in nature.

The more ambitious approach and the influence of English within the BS pupils' discourse-related activities provide evidence for the transfer of writing skills from one language classroom to another. Although these writing skills reflect awareness of how to use language to communicate and write effectively, this awareness was strongly embedded in procedural knowledge (of English). Moreover, they were applied with little concern for, or reflection on the correctness of these items in German.

## Discussion

The findings provide evidence of an increase in cross-linguistic interactions and a more online and ambitious approach to the task for the BS pupils, revealing effects for both L2 proficiency and L2 pedagogy. However, the data did not provide clear-cut evidence of metalinguistic advantages for the BS pupils, as so often reported in the bilingualism literature. Instead, the study found, on the one hand, that the non-BS pupils displayed stronger skills associated with the application of metalinguistic information, as evident in a more offline processing of the L3, which provided them with an advantage in relation to the accurate production of German. On the other hand, the data saw significantly more metacognitive activity in the BS group. The study therefore raises questions about the nature and definition of metalinguistic skills, identifying several areas of tension within the concept, while also revealing its limitations for our understanding of L3 learning in bilingual education settings.

### Metalinguistic skills and multilingual cognition

An important tension observed was that the high levels of monitoring and control in the BS pupils' processing of German (as evidenced by the levels of metacognitive language functions) did not always involve metalinguistic knowledge. Many of the metacognitive lexicon-related activities, for example, concerned TOT states. The higher level of TOTs within the BS group, and cross-linguistic TOTs in particular, confirms a pattern found in previous studies comparing TOT rates in monolingual and bilingual speakers (e.g. Gollan and Silverberg 2001), and reflects greater complexity in lexical access as characteristic of the bi/multilingual mental lexicon (De Bot 2004). Yet, whereas the metacognitive status of TOTs cannot be disputed given the high levels of monitoring, control, and feeling-of-knowing (Efklides 2008), their metalinguistic status can be questioned. In particular, TOTs reflect a strong 'knowing that we know' without being able to reason our way into accessing that knowledge (De Bot 1996). Moreover, TOTs highlight that not all revisions are 'corrections of specific errors, but simply retries of the same utterance' (542). This means that the difference in



the metacognitive SCLFs as pertaining to the pupils' lexicon-related activities can be taken to reflect greater metacognitive activity, but not necessarily greater metalinguistic skills.

Although this highlights some of the methodological difficulties and limitations in using speech function analysis to infer metalinguistic processes, it also provides further insight into how metalinguistic skills relate to metacognition, revealing the mapping of metalinguistic phenomena onto cognitive processes to be more complex than Bialystok's Analysis and Control framework seems to imply. In particular, the findings highlight that greater attention on language associated with the control and inhibition of linguistic information, while perhaps leading to greater language awareness as 'noticing', does not necessarily translate to greater language awareness as 'understanding' (Schmidt 1994). The data thus question, as Jessner (2006) did, whether 'the use of metalanguage [is] an indicator of a higher level of attention and awareness' (118). What is more, attention on language resulting from cognitive control does not necessarily require awareness to operate (Tomlin and Villa 1994), with routines involving controlled processing being established on information that 'may just as well be implicit as explicit (or, indeed, a mixture of implicit and explicit information)' (Hulstijn 1990, 34). This means that cognitive control, although key to understanding language processing (and multi-lingual language processing in particular), lacks explanatory power for understanding metalinguistic awareness, with the metalinguistic nature of linguistic behaviour being determined more strongly by the level of analysis (Bialystok 2001) or abstraction (Halliday 1993) that is represented in knowledge. More precisely, it means that metacognition of language needs to be understood as a wider concept than metalinguistic skills (Karmiloff-Smith 1986), the latter being a specific but not the only language behaviour associated with cognitive control.

As such, Bialystok's Analysis and Control framework can perhaps be criticised for blurring the differentiated effects that cognitive control can have during language processing and on further language learning, it being implied in 'attention' on language (Tomlin and Villa 1994), 'noticing' of language (Schmidt 1994) and 'understanding of language' (Jessner 2005) as leading to both explicit and implicit learning, often simultaneously (Ellis 2005). Interestingly, although studies have highlighted the relationship between cognitive control and a range of abilities in younger children (e.g. Blair and Peters 2007), exactly how an advanced cognitive control may benefit further language learning, particularly in older learners, is a question that still remains to be answered. The current study emphasises the mediation that the attention on language associated with cross-linguistic interactions could be playing in the BS pupils' L3 learning processes, both explicitly through metalinguistic development (e.g. Maillat and Serra 2009) and implicitly. Importantly, the increase in cross-linguistic interactions reveals that the BS pupils may have a disadvantage in relation to lexical retrieval and fluency in L3 use, yet a potential advantage in relation to cognitive control or the development thereof through the monitoring and frequent switching of language. This is in line with current research on bilinguals (e.g. Bialystok 2009) and indicates that, as L3 learners, the BS pupils need to be considered more similar to 'active bilinguals' than to 'foreign language users' (Cenoz 2013), an important theoretical recognition (Grosjean 1985; Herdina and Jessner 2002) that has practical implications for L3 pedagogy in bilingual education settings. Whether this necessarily needs to be interpreted in terms of a metalinguistic advantage in L3 learning is, however, questionable.

### ***Metalinguistic skills, language awareness and L3 learning***

Another important finding was that the pupils' LRAs were affected by their respective L2 writing experiences: The BS pupils transferred their more advanced L2 writing skills and strategies to the L3 task, while the non-BS pupils approached the task like novice L2 writers. For the BS pupils, this meant a greater reliance on procedural language skills as embedded in their knowledge of English, while other activities – those pertaining to lexicon and conjugation in particular – consisted of updating and monitoring information in working memory in a highly intuitive manner, reflecting the process of 'experience-based' rather than 'information-based monitoring' (Koriat and Levy-Sadot 1999). Conversely, the activities of non-BS pupils saw a stronger conscious application of previously

learned vocabulary and metalinguistic rules, coinciding with more explicit metalinguistic expressions and comments. Thus, while the BS pupils' activities more strongly reflected a 'functional awareness of the rules and organization and use of language' (Gombert 1992, 12), those of the non-BS pupils seemed to reflect a greater 'capacity to look at language from the outside' (Camps and Millian 2000, 1).

This confirms the tension between explicit metalinguistic skills and understanding of language as a wider and more tacit phenomenon (Van Lier 1998; Jessner 2006). More precisely, it confirms the notion that there exist 'high' and 'low' forms of knowing about language (Roehr 2006, 2008), as relating to stronger offline and online monitoring of language, respectively (Efklides 2008), as well as to the distinction between awareness as 'noticing' and as 'understanding' (Schmidt 1994) already highlighted in relation to the differentiated effects of cognitive control. The study thus re-emphasises the importance of thinking about awareness in terms of gradations or levels (Gombert 1992; Schmidt 1994; Norman et al. 2007), with the real story in terms of differences between the two groups of pupils lying in understanding how various forms of language awareness mediate L3 use and learning. The study therefore foregrounds the concepts of *language awareness* (Van Lier 1998) and *linguistic awareness* (Jessner 2006) as ecologically more valid concepts for understanding multilingual processing and L3 learning, while emphasising that these levels of awareness need to be understood in terms of the level of 'representational explication' (Karmiloff-Smith 1986, 95), analysis (Bialystok 2001) or abstraction (Halliday 1993), and not necessarily in terms of strength or intensity.

Finally, the study also revealed a distinction between different levels of awareness to be relevant to understanding L3 learning in CLIL contexts, thereby stressing the importance of a clear definition of metalinguistic skills to be able to effectively describe L3 learning. More specifically, if metalinguistic skills are understood to refer to the full range of ways in which people can understand, reflect on and manipulate language, the answer to the question posed in the title would invariably be 'it depends'. This would mean that the concept of metalinguistic skills loses its value for helping us understand how different types of language learners (including 'active bilinguals' and 'foreign language users') differ from each other, or for identifying how the skills of different types of L3 learners relate to L3 learning advantages. The study, therefore, calls for metalinguistic skills to be understood in the more restricted sense of 'explicit knowledge of linguistic structure' (Bialystok and Barac 2013, 193), this being a particular form of language awareness that emerges from the holistic functioning of the mind in language processing, and that mediates language use and learning (Van Lier 1998). This definition is adopted, however, while acknowledging several caveats and limitations.

Firstly, whether this explicit knowledge about language necessarily needs to be 'correct' from the perspective of the language textbook (Roehr 2008), and what counts as meaningful metalanguage for language learning in multilingual classrooms, are important questions for L3 pedagogy research to answer. Secondly, what can be taken as evidence of metalinguistic skills constitutes a significant methodological challenge in L2/L3 research, as the authors acknowledge that identifying the metalinguistic nature of the learner's L2/L3 skills may never be entirely possible, at least not when captured solely through observable behaviour. It can be questioned, for example, whether what was observed in the BS pupils' think-aloud protocols reflected a change in the external characteristics of metalinguistic skills, with 'metalinguistic knowledge [being] as open to automatisisation as any other domain of knowledge' (Sharwood Smith 2004, 276), or whether their skills reflected largely unanalysed knowledge (Bialystok 2001) that 'exists only to the extent that it is part of familiar routines or procedures' (Jessner 2008b, 360). The fact that the retrospective interviews were able to confirm the BS pupils' inability to explain many aspects of their writing, and in particular their inability to spot their transfer of English features to the German text, perhaps provides evidence in favour of the latter hypothesis. Current methodological limitations, thus, add to the complexity involved in identifying whether the BS pupils may have a metalinguistic advantage over the non-BS pupils.

Lastly, the study highlighted the limitations of the concept of metalinguistic skills for understanding multilingual language learning in bilingual education settings. The findings suggest that the non-BS pupils exhibited stronger metalinguistic skills, while changes in the BS pupils' L3 learning were

found to be more strongly associated with a functional linguistic awareness than with the use or emergence of metalinguistic knowledge. This seems to be in line with Renou (2001), who found that metalinguistic knowledge correlated positively with L2 proficiency for adult L2 learners exposed to grammar instruction, but that, despite no significant differences in L2 proficiency, no evidence of such a correlation was found for learners who had been exposed to communicative language teaching. The findings thus suggest that the BS pupils may be 'good language learners' as a consequence of being 'experienced language learners' (Kemp 2007) rather than as a consequence of the diligent learning of metalinguistic rules and strategies. Being an 'experienced language learner', in this case, encapsulates skills 'develop[ed] on account of the demands of processing multiple languages required in their environment' (243) and on account of the highly situated reflection on language associated with CLIL instruction, the combination of which seeming to have resulted in more tacit skills as relating to the monitoring of language closer to the instantiation of language itself. Further research exploring how skills at different levels of language awareness impact on additional language learning is, however, required to determine whether this could provide the BS pupils with L3 learning advantages over the non-BS pupils.

### ***Metalinguistic skills and language learning attitudes***

The findings also revealed that differences in metalinguistic skills between the two groups of pupils were affected by changes in the BS pupils' attitude towards language learning, resulting in a more online, 'give-it-a-go' strategy being adopted to complete the task. It is in relation to attitudinal changes that the effects of CLIL could most strongly be observed. In particular, the data provided evidence of a stronger disengagement with grammatical form at the metalinguistic level. The data also suggest that the origins of this disengagement lie in a complex interplay between multilingual proficiency and motivation as relating to the BS pupils' language learning experiences within the bilingual programme, where an explicit focus on grammar features less prominently in the L2 instruction and in pupils' L2 production strategies. A potential disadvantage for the BS pupils relating to the learning of German grammar should, thus, be acknowledged too: skills at higher levels of abstraction can be of substantial benefit to the use and learning of German, as German is an inflectional language with both gender and case markings.

At the same time, the BS pupils were found to be more preoccupied with communicating the meaning embedded in the pictures than with writing a story in German per se. This was evidenced by the BS pupils more ambitious sentence constructions, their stronger tendency to create words rather than to simplify the message, as well as their feelings of frustration when at times they had to do so. Moreover, the findings revealed that the BS pupils' were more willing to risk communication in spite of being unsure whether the item was grammatically incorrect. In line with current research on CLIL, the study thus found evidence of a greater risk-taking attitude (Dalton-Puffer 2008) in the BS group, reflecting more positive attitudes and beliefs (Lasagabaster and Sierra 2009) when using and learning a foreign language. Given the negative impact of foreign language anxiety on the language learning process (Matsuda and Gobel 2004), this risk-taking attitude may provide the BS pupils with an advantage in L3 learning as relating to greater flexibility and willingness to try alternative strategies.

### **Conclusion**

Although the number of participants involved in the study was low, the multileveled analysis was able to reveal important differences in the L3 processing of the BS and non-BS pupils, some potentially leading to advantages in L3 learning for the BS pupils. However, the study raised questions about whether this advantage is metalinguistic in nature. On the one hand, this related to the conceptual complexity concerning how metalinguistic skills map onto language awareness, as well as methodological limitations associated with the measurement of metalinguistic levels of awareness.

On the other hand, this related to the fact that, in terms of understanding the implications of bilingual education for L3 learning, the findings emphasise that metalinguistic skills are only one part of a highly complex multilingual process, with the data highlighting the role that cross-linguistic interactions, prior linguistic knowledge and learner attitudes can play in L3 learning. Specifically, the study identified a need for clearer delineation of metalinguistic skills as separated from other domains for which advantages for bilinguals have been found. These include both cognitive control (Bialystok and Viswanathan 2009) and learner strategies (Kemp 2007) as part of a learner's linguistic repertoire (Cenoz 2013). At the same time, the study highlights research into linguistic repertoires and the different roles of supporter languages in L3 learning as potentially more fruitful avenues for understanding L3 learning than research focused on metalinguistic skills only, with the findings revealing the BS pupils' linguistic repertoire to be broader as a consequence of their enhanced L2 proficiency and more varied language learning experiences. Further research is, however, needed to separate the effects of proficiency and pedagogy, as well as the specific advantages and difficulties in L3 learning associated with these factors. In fact, replications of the study involving different types of bilinguals and L3 learners may provide insight into which elements of multilingual proficiency are shared and therefore reflect the specific functioning of the multilingual mind, and which ones are more strongly associated with the environment in which the language learning occurs. This would benefit our understanding of the influence that specific language pedagogies may have on further language learning, and allow for multilingual proficiency to be integrated in language classrooms.

## Notes

1. Of the 130 schools offering bilingual education in the Netherlands, 120 do so at VWO level. Source (last accessed 1 July 2015): <http://www.europeesplatform.nl/tto/scholen>.
2. Of the 130 schools offering bilingual education in the Netherlands, only two schools offer Dutch–German bilingual programmes. Source (last accessed 1 July 2015): <http://www.europeesplatform.nl/scholen>.

## Acknowledgements

The authors would like to thank Dr Tracey Tokuhama-Espinosa and the anonymous reviewers for their helpful comments on earlier drafts of this contribution. The research presented in this work was supported by a scholarship of the Economic and Social Research Council, UK.

## Disclosure statement

No potential conflict of interest was reported by the authors.

## References

- Admiraal, W., G. Westhoff, and K. de Bot. 2006. "Evaluation of Bilingual Secondary Education in the Netherlands: Students' Language Proficiency in English." *Educational Research and Evaluation* 12 (1): 75–93.
- Anton, M. 1999. "The Discourse of a Learner-Centered Classroom: Sociocultural Perspectives on Teacher-Learner Interaction in the Second-Language Classroom." *The Modern Language Journal* 83 (3): 303–318.
- Bialystok, E. 2001. "Metalinguistic Aspects of Bilingual Processing." *Annual Review of Applied Linguistics* 21: 169–181.
- Bialystok, E. 2009. "Bilingualism: The Good, the Bad, and the Indifferent." *Bilingualism: Language and Cognition* 12 (1): 3–11.
- Bialystok, E., and R. Barac. 2013. "Cognitive Effects." In *The Psycholinguistics of Bilingualism*, edited by F. Grosjean and P. Li, 192–213. Chichester, UK: Wiley-Blackwell.
- Bialystok, E., and M. Viswanathan. 2009. "Components of Executive Control with Advantages for Bilingual Children in Two Cultures." *Cognition* 112 (3): 494–500.
- Blair, C., and R. Peters. 2007. "Relating Effortful Control, Executive Function, and False Belief Understanding to Emerging Math and Literacy Ability in Kindergarten." *Child Development* 78 (2): 647–663.

- Brohy, C. 2001. "Generic and/or Specific Advantages of Bilingualism in a Dynamic Plurilingual Situation: The Case of French as an Official L3 in the School of Samedan (Switzerland)." *International Journal of Bilingual Education and Bilingualism* 4 (1): 38–49.
- Camps, A., and M. Millian. 2000. "Metalinguistic Activity in Learning to Write: An Introduction." In *Metalinguistic Activity in Learning to Write*, edited by A. Camps and M. Millian, 1–28. Amsterdam: Amsterdam University Press.
- Cenoz, J. 2003. "The Additive Effects of Bilingualism on Third Language Acquisition: A Review." *International Journal of Bilingualism* 7 (1): 71–87.
- Cenoz, J. 2008. "Introduction to Volume 6: Knowledge about Language." In *Encyclopedia of Language and Education*, Vol. 6: *Knowledge about Language*, edited by J. Cenoz and N. Hornberger, xiii–xvii. New York: Springer.
- Cenoz, J. 2013. "The Influence of Bilingualism on Third Language Acquisition: A Focus on Multilingualism." *Language Teaching* 46 (1): 71–86.
- Chaudron, C. 1983. "Research on Metalinguistic Judgments: A Review of Theory, Methods, and Results." *Language Learning* 33 (3): 343–377.
- Cordón, L. A., and J. D. Day. 1996. "Strategy Use on Standardized Reading Comprehension Tests." *Journal of Educational Psychology* 88 (2): 288–295.
- Coyle, D. 2007. "Content and Language Integrated Learning: Towards a Connected Research Agenda for CLIL Pedagogies." *International Journal of Bilingual Education and Bilingualism* 10 (5): 543–562.
- Coyle, D., P. Hood, and D. Marsh. 2010. *CLIL: Content and Language Integrated Learning*. Cambridge: Cambridge University Press.
- Cummins, J. 1979. "Linguistic Interdependence and the Educational Development of Bilingual Children." *Review of Educational Research* 49 (2): 222–251.
- Dalton-Puffer, C. 2008. "Outcomes and Processes in Content and Language Integrated Learning (CLIL): Current Research from Europe." In *Future Perspectives for English Language Teaching*, edited by W. Delanoy and L. Volkman, 139–157. Heidelberg, Germany: Carl Winter.
- De Angelis, G. 2005. "Multilingualism and Non-native Lexical Transfer: An Identification Problem." *International Journal of Multilingualism* 2 (1): 1–25.
- De Bot, K. 1996. "Review Article: The Psycholinguistics of the Output Hypothesis." *Language Learning* 46 (3): 529–555.
- De Bot, K. 2004. "The Multilingual Lexicon: Modelling Selection and Control." *International Journal of Multilingualism* 1 (1): 17–32.
- De Bot, K., and C. Jaensch. 2015. "What Is Special about L3 Processing?" *Bilingualism: Language and Cognition* 18 (2): 130–144.
- De Graaff, R., G. J. Koopman, Y. Anikina, and G. Westhoff. 2007. "An Observation Tool for Effective L2 Pedagogy in Content and Language Integrated Learning (CLIL)." *International Journal of Bilingual Education and Bilingualism* 10 (5): 603–622.
- Efkides, A. 2008. "Metacognition: Defining Its Facets and Levels of Functioning in Relation to Self-regulation and Co-regulation." *European Psychologist* 13 (4): 277–287.
- Ellis, N. C. 2005. "At the Interface: Dynamic Interactions of Explicit and Implicit Language Knowledge." *Studies in Second Language Acquisition* 27 (2): 305–352.
- Ericsson, K., and H. Simon. [1984] 1993. *Protocol Analysis: Verbal Reports as Data, Revised Edition*. Cambridge: MIT Press.
- Falk, Y., C. Lindqvist, and C. Bardel. 2015. "The Role of L1 Explicit Metalinguistic Knowledge in L3 Oral Production at the Initial State." *Bilingualism: Language and Cognition* 18 (2): 227–235.
- Foster, P., and A. S. Ohta. 2005. "Negotiation for Meaning and Peer Assistance in the Second Language Classroom." *Applied Linguistics* 26 (3): 402–430.
- Gass, S., and A. Mackey. 2000. *Stimulated Recall Methodology in Second Language Research*. Mahwah, NJ: Lawrence Erlbaum.
- Grosjean, F. 1985. "The Bilingual as a Competent but Specific Speaker-Hearer." *Journal of Multilingual and Multicultural Development* 6 (6): 467–477.
- Gollan, T. H., and N. B. Silverberg. 2001. "Tip-of-the-Tongue States in Hebrew–English Bilinguals." *Bilingualism: Language and Cognition* 4 (1): 63–83.
- Gombert, J. 1992. *Metalinguistic Development*. New York: Harvester Wheatsheaf.
- Halliday, M. A. K. 1993. "Towards a Language-Based Theory of Learning." *Linguistics and Education* 5 (2): 93–116.
- Herdina, P., and U. Jessner. 2002. *A Dynamic Model of Multilingualism: Perspectives of Change in Psycholinguistics*. Clevedon, UK: Multilingual Matters.
- Hulstijn, J. H. 1990. "A Comparison between the Information-Processing and the Analysis/Control Approaches to Language Learning." *Applied Linguistics* 11 (1): 30–45.
- Jessner, U. 2005. "Multilingual Metalanguage, or the Way Multilinguals Talk about Their Language." *Language Awareness* 14 (1): 56–68.
- Jessner, U. 2006. *Linguistic Awareness in Multilinguals*. Edinburgh, UK: Edinburgh University Press.
- Jessner, U. 2008a. "A DST Model of Multilingualism and the Role of Metalinguistic Awareness." *The Modern Language Journal* 92 (2): 270–283.
- Jessner, U. 2008b. "Language Awareness in Multilinguals: Theoretical Trends." In *Encyclopedia of Language and Education*, Vol. 6: *Knowledge about Language*, edited by J. Cenoz and N. Hornberger, 357–369. New York: Springer.

- Karmiloff-Smith, A. 1986. "From Metaprocesses to Conscious Access: Evidence from Children's Metalinguistic and Repair Data." *Cognition* 23 (2): 95–147.
- Kemp, C. 2007. "Strategic Processing in Grammar Learning: Do Multilinguals Use More Strategies?" *International Journal of Multilingualism* 4 (4): 241–261.
- Keshavarz, M. H., and H. Astaneh. 2004. "The impact of Bilinguality on the Learning of English Vocabulary as a Foreign Language (L3)." *International Journal of Bilingual Education and Bilingualism* 7 (4): 295–302.
- Koriat, A., and R. Levy-Sadot. 1999. "Processes Underlying Metacognitive Judgements: Information-Based and Experience-Based Monitoring of One's Own Knowledge." In *Dual-Process Theories in Social Psychology*, edited by S. Chaiken and Y. Trope, 483–502. New York: Guilford.
- Kumpulainen, K., and M. Mutanen. 1999. "The Situated Dynamics of Peer Group Interaction: An Introduction to an Analytic Framework." *Learning and Instruction* 9 (5): 449–473.
- Lasagabaster, D., and J. M. Sierra. 2009. "Language Attitudes in CLIL and Traditional EFL Classes." *International CLIL Research Journal* 1 (2): 4–17.
- Mailat, D., and C. Serra. 2009. "Immersion Education and Cognitive Strategies: Can the Obstacle Be the Advantage in a Multilingual Society." *International Journal of Multilingualism* 6 (2): 186–206.
- Matsuda, S., and P. Gobel. 2004. "Anxiety and Predictors of Performance in the Foreign Language Classroom." *System* 32 (1): 21–36.
- Naiman, N., M. Fröhlich, H. Stern, and A. Todesco. 1978. *The Good Language Learner*. Toronto: Ontario Institute for Studies in Education.
- Nation, R., and B. McLaughlin. 1986. "Novices and Experts: An Information Processing Approach to the "Good Language Learner" Problem." *Applied Psycholinguistics* 7 (1): 41–56.
- Norman, E., M. Price, S. C. Duff, and R. A. Mentzoni. 2007. "Gradations of Awareness in a Modified Sequence Learning Task." *Consciousness and Cognition* 16 (4): 809–837.
- Ohta, A. S. 1995. "Applying Sociocultural Theory to an Analysis of Learner Discourse: Learner-Learner Collaborative Interaction in the Zone of Proximal Development." *Issues in Applied Linguistics* 6 (2): 93–121.
- Pérez-Cañado, M. L. 2012. "CLIL Research in Europe: Past, Present, and Future." *International Journal of Bilingual Education and Bilingualism* 15 (3): 315–341.
- Pinto, M. A. 1995. "Three Age-Level Metalinguistic Abilities Tests: Theoretical Framework and Description." *Italian-Canadian Linguistic Bulletin, Il Forneri* 1: 3–28.
- Renou, J. 2001. "An Examination of the Relationship Between Metalinguistic Awareness and Second-Language Proficiency of Adult Learners of French." *Language Awareness* 10 (4): 248–267.
- Roehr, K. 2006. "Metalinguistic Knowledge in L2 Task Performance: A Verbal Protocol Analysis." *Language Awareness* 15 (3): 180–198.
- Roehr, K. 2008. "Linguistic and Metalinguistic Categories in Second Language Learning." *Cognitive Linguistics* 19 (1): 67–106.
- Schmidt, R. 1994. "Deconstructing Consciousness in Search of Useful Definitions for Applied Linguistics." *AILA Review* 11: 11–26.
- Sharwood Smith, M. 2004. "In Two Minds about Grammar: On the Interaction of Linguistic and Metalinguistic Knowledge in Performance." *Transactions of the Philological Society* 102 (2): 255–280.
- Swain, M. 2000. "The Output Hypothesis and Beyond: Mediating Acquisition Through Collaborative Dialogue." In *Sociocultural Theory and Second Language Learning*, edited by J. Lantolf, 97–114. Oxford: Oxford University Press.
- Swain, M., and S. Lapkin. 1995. "Problems in Output and the Cognitive Processes They Generate: A Step Towards Second Language Learning." *Applied Linguistics* 16 (3): 371–391.
- Tomlin, R. S., and V. Villa. 1994. "Attention in Cognitive Science and Second Language Acquisition." *Studies in Second Language Acquisition* 16 (2): 183–203.
- Van Lier, L. 1998. "The Relationship Between Consciousness, Interaction and Language Learning." *Language Awareness* 7 (2&3): 128–145.
- Van Lier, L. 2002. "An Ecological-Semiotic Perspective on Language and Linguistics." In *Language Acquisition and Language Socialization: Ecological Perspectives*, edited by C. Kramsch, 140–164. London: Continuum.
- Wells, G. 1999. *Dialogic Enquiry: Towards a Sociocultural Practice and Theory of Education*. Cambridge: Cambridge University Press.