

Linguistic sources in grammar education

Fostering reflective thinking about language

Astrid Wijnands



Radboud Docenten Academie

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Fostering reflective thinking about language

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Astrid Wijnands

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Promotor:

Prof. dr. P.A.J.M. Coppen

Copromotor:

Dr. G.L. Stoel

Manuscriptcommissie:

Prof. dr. H. de Hoop

Prof. dr. C.A.M. van Boxtel (Universiteit van Amsterdam)

Prof. dr. K. Van den Branden (KU Leuven, België)

dr. J. Evers-Vermeul (Universiteit Utrecht)

dr. R.J.U. Boogaart (Universiteit Leiden)

Voor Inge

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Chapter 1

Introduction

1.1 General introduction

Many questions about language cannot be answered with one simple answer. For the Dutch language, this becomes clear when consulting Language Advice works, such as ‘Taalloket’ (Onze Taal), ‘Taaladviesnet.nl’, and Renkema (2016). In those linguistic sources, the standardised prescriptive language rule is given, but this rule is often immediately questioned. In some cases, the mandatory character of the rule is relativized (‘It is no mandatory rule’¹), or it is noticed that the rule is not always applied consequently in practice, or even seldom applied (‘the difference is seldom applied consequently’²). Some language advice works express no formal preference but notice that one form is used more frequently (‘In principle both singular and plural are possible, but in practice the singular is more common’³). In other cases, the advice stresses that some form ‘is very well defensible’⁴, or even that a choice is ‘a matter of personal preference’⁵. Sometimes, a language advice work even admits that the rationale of some prescriptive language rule is not clear (‘Why this is the case, is hard to explain’⁶) or advises not to worry too much about a rule if it is inconvenient (‘There are three rules. Because these rules are quite tricky, they are under pressure. Maybe that’s why you shouldn’t worry too much about these end-n’⁷). In short, although language advice works appear to be meant to provide clear and unequivocal advice, a user in search for the one correct form is often confronted with uncertainty or more than one possible choice.

Many such language recommendations are based on reference grammars. This is the case for the Dutch language where language advices are based on the ‘Algemene Nederlandse Spraakkunst’ (Colleman et al., 2021), but also, for example, for the English language where language advices are based on the reference grammar ‘A comprehensive grammar of the English Grammar’ (Quirk et al., 2008). Reference grammars describe language variety and are aimed at a general audience. They often explicitly state that they should not be used as prescriptive sources (see Colleman et al., 2021, par. 2.2; Quirk et al., 2008, p. 14). For example, the introduction of the Dutch reference grammar states that its purpose is not ‘to dictate users which elements and structures they “are allowed to” use in which standard language contexts, let alone to distinguish between what is “correct Dutch” and what is not’ (section 5.7, <https://e-ans.ivdnt.org/over#ans000507st>) (translation AW). Through labels used for style

¹ <https://onzetaal.nl/taalloket/jong-en-oud-vermaakte-vermaakten-zich>

² <https://taaladvies.net/hen-of-hun-algemeen/>

³ <https://onzetaal.nl/taalloket/aan-en-uitzetten-gebeurt-gebeuren-handmatig>

⁴ <https://onzetaal.nl/taalloket/standaard-doorlooptijd-standaarddoorlooptijd>

⁵ <https://taaladvies.net/congruentieproblemen-met-en-algemeen/>

⁶ <https://onzetaal.nl/taalloket/verlorengeaan-verloren-gaan>

⁷ Renkema (2016), p. 111

(formal and informal), geography (e.g., Belgian Dutch), or 'Standard Dutch', this grammar informs users about variants in the Dutch language. These labels enable users to make their own choice of variant. However, some users interpret these labels as an approval to use certain variants, while others see the label standard Dutch as a disapproval of other variants.

In education, language advice works and reference grammar are not systematically used (Coppen, 2013). The lack of unambiguous rules for language in these linguistic sources can lead to uncertainty among learners. Therefore, textbooks in schools often try to give learners grip on language by didactically simplifying language in the form of unambiguous rules of thumb.

An example is the rule that word groups with *een aantal* ('a number') must always be singular, which is stated in some textbooks, but not in any reference grammar. Another example of didactic simplification concerns the word *hun* ('their') in Dutch. This word appears in standard Dutch as a pronoun and as a possessive pronoun. However, some textbooks now prescribe the rule that the word *hun* ('their') can only be used as a possessive pronoun, although it can very well be used grammatically as an indirect object pronoun. Textbooks make this restriction to keep students from using *hun* as a subject, which is considered very bad Dutch by many language users (De Hoop, 2020). This restriction is not found in any language advice.

In contrast to textbooks that avoid grammatical uncertainties, recent educational developments (nationally and internationally) have actually paid greater attention to 21st-century skills that boil down precisely to dealing with uncertainties (Trilling & Fadel, 2009). Digital literacy often involves assessing contradictory sources (KNAW, 2013), and also critical thinking concerns dealing with uncertainties or incomplete and contradictory data (Ennis, 2015). In addition, creativity and curiosity receive greater attention, often accompanied with a strategy to leave the beaten track (Cropley, 2006; Platform Onderwijs2032, 2016). Students should be able to ask critical questions, reflect on learning processes, and acquire knowledge for further development. All these developments are opposed to the didactic simplification of language rules in textbooks, but in line with the uncertainties in language advice works and reference grammars. Thus, not using these works in the classroom is a missed opportunity.

1.2 Grammar education in the Netherlands and Dutch speaking Belgium

The position of grammar teaching in the curriculum has been the subject of debate internationally for many years (Locke, 2010; Rättyä et al., 2019; Van Rijt, 2020).

Whereas initially the discussions included the question of whether grammar should be part of the curriculum at all, now the focus is on how grammar should be taught and what content should be involved (Hendrix & Hulshof, 2010; Van Rijt, 2020; Van Rijt & Coppen, 2021). As Van Rijt and Coppen (2021) point out, grammar often finds its way into the curriculum based on the conviction that grammar teaching can be shown to contribute to students' literacy. In their article, Van Rijt and Coppen (2021) argue for the value of teaching grammar on its own without a direct relationship to literacy. By positioning grammar as a knowledge subject in the curriculum, students not only learn how language works and gain a better understanding of how the human brain works, but are also stimulated to reason about language and develop their critical-thinking skills (see also Coppen, 2010a; Honda, 1994; Honda & O'Neil, 2008; Honda et al., 2010; Hudson, 2004; Moesker & Das, 2010; Verhagen, 2010). This is where the research in this dissertation fits in. To our knowledge, little research has been done on the use of linguistic sources to develop thinking skills. While Hudson (2004) and Honda (1994) advocate students to explore their own language intuitions in grammar teaching, they do not pay attention to the use of linguistic sources, such as language advice sites, popular science articles, language corpora or even a reference grammar.

In education in the Netherlands, grammar has traditionally been part of the curriculum in the first three years in pre-university education (vwo) and senior general secondary education (havo) and in all years of pre-vocational secondary education (vmbo). It generally involves parsing sentences and word labelling in decontextualised sentences and aims to teach learners to use the language correctly, both orally and in writing (Meijerink, 2009; Van der Aalsvoort, 2016). Grammar is a part of the curriculum about which most students are not enthusiastic (Bonset & Hoogeveen, 2010; Coppen, 2009, 2013). Teachers, on the other hand, consider grammar an important part of the curriculum (Bonset & Hoogeveen, 2010; Van Rijt, 2020) but many of them also experience grammar as a difficult subject to teach (Coppen, 2009). Textbooks in senior general secondary and pre-university education often offer more grammar than prescribed (see Bonset & Hoogeveen, 2010; Meijerink, 2009; Tordoir & Damhuis, 1982; Van Rijt, 2020). In upper secondary school, grammar teaching in pre-university and senior general secondary education is integrated within writing lessons to avoid language errors such as incorrect inversion or incorrectly used dangling modifiers. The use of linguistic sources is not a prescribed part of the Dutch curriculum.

In the Dutch-speaking part of Belgium, Flanders, formal guidelines for primary and secondary education were revised in 2009 and 2010 (Coppen, 2010b; Vlaamse

Overheid, z.d.). This revision means, firstly, that grammar education is not limited to the lower grades, but is spread over all grades. Second, not only terms that guide verb spelling (such as subject, personal form and verb phrase) are prescribed, but all parsing terms are included in the attainment targets, working from a communicative approach (Uyttendaele, 2014; VVSKO, 2014) and education seems to be working more towards language awareness (see section 1.3.1). The aim of teaching grammar in Flanders is that it should be functional by raising students' language proficiency levels, but it should also contribute to cultural and intercultural education, where respect for each other's culture is important (Knop, 2016; Van Laere, 2016). Students do not only learn concepts, but also learn to reflect on language so that they can understand aspects of language in a broader context. In practice, however, this communicative approach is often combined with a more traditional approach to grammar teaching in the lower parts of secondary education, while the communicative approach is applied in subsequent parts of secondary education (Van Vooren et al., 2012). In Belgium, the use of linguistic sources also meets the curricula (VVSKO, 2014) which prescribe that students should read simple scientific texts.

Although both in the Netherlands and in Dutch-speaking Belgium, the use of linguistic sources is not explicitly a prescribed part of the grammar curriculum, the implementation of these sources could stimulate students' linguistic reasoning and support recent curriculum goals (e.g., Robben, 2010).

1.3 Conceptual framework

This dissertation is about the way linguistic sources can be used in grammar education with the aim of fostering students' ability to deal with uncertainties when analysing language issues. In this section, three central concepts will be elaborated, being *linguistic awareness*, *reflective thinking*, and *linguistic sources*. At the end of this section, the relationship between these concepts will be outlined in a model visualising how linguistic sources are expected to be the impetus for the development of linguistic awareness.

1.3.1 Linguistic awareness

As pointed out in Giovanelli and Clayton (2016), language awareness and linguistic awareness are used interchangeably to refer to the study of language by native language users. In this dissertation, the distinction is made between language awareness and linguistic awareness. *Language awareness* has been defined by the Association of Language Awareness (ALA, n.d.) as “explicit knowledge about language, and conscious perception and sensitivity in language learning, language teaching, and language use”. The key word in this definition is ‘sensitivity’ that

refers to a form of reflection allowing students to gain a better understanding of the workings of language. It can help them make conscious choices in language use (Chen & Myhill, 2016; Fontich, 2016; Hudson, 2004; Jansen, et al., 2019; Jones & Chen, 2012; Myhill, 2010, 2016, 2021; Van Gelderen, 2010). The term linguistic awareness partly overlaps this definition of language awareness by ALA, since awareness still concerns a form of sensitivity and reflection. However, while in language awareness the focus is on using language, linguistic awareness refers to reflection on language from linguistic theory in order to discuss language phenomena. This can be done from the perspective of language as a systemic, cognitive, social, or historical phenomenon (Meesterschapsteam Nederlands, 2018, 2021).

International education reforms focus heavily on fostering language awareness in the classroom (Chen & Myhill, 2016; Fontich, 2016; Hudson, 2004; Jones & Chen, 2012; Myhill, 2010), for example in Belgium (VVSKO, 2014), the UK (DfE, 2014) and Australia (ACARA, 2009). In the Netherlands, the proposals published in recent years on the future of the school subject mention the stimulation of critical thinking about and reflection on language in order to develop students' linguistic awareness of Dutch rather than their language awareness (Curriculum.nu, 2019; Herder, Van Silfhout, & Jansen, 2021; Levende Talen, 2019; Meesterschapteam, 2021; Vanhooren et al., 2017; Prenger & Pleumeekers, 2024). The use of linguistic sources in the classroom fits seamlessly in those education reforms. Precisely because of the richness in the description of different variants in language reality, consulting linguistic sources in L1 grammar education could make students aware that language is actually more complex than the prescriptive language rules suggest, thus stimulating not only language awareness, but also linguistic awareness (Coppen, 2009, 2010b; Coppen et al., 2019; Dielemans & Coppen, 2020; Hudson, 2004; Van Rijt, 2020; Van Rijt & Wijnands, 2017).

1.3.2 Reflective thinking

Dewey (1910), who was the first to give a comprehensive description of reflective thinking, defined this thinking as an 'Active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusions to which it tends' (Dewey, 1910, p. 6). According to Dewey, this thinking begins with 'a state of perplexity, hesitation, doubt' (Dewey, 1910, p. 9) followed by an investigation to uncover more facts in order to reach a judgment. He characterises this process as a 'somewhat painful one' (Dewey, 1910, p. 13) because the investigation takes time, so the uncomfortable mental state of uncertainty may persist longer than desired. According to King and Kitchener (1994, p. 11), this thinking can only happen when individuals are confronted with so-called

ill-structured problems. These are problems for which a correct or unambiguous solution is not apparent (King & Kitchener, 1994, 2002, 2004). They cannot be solved by logic alone, but require a reasoned evaluation in a particular context, a so-called reflective judgment (King & Kitchener, 1994).

The development of reflective thinking is roughly outlined in the literature in three levels: a level in which no reflective thinking takes place, an intermediate level in which individuals acknowledge that a problem can be viewed from different perspectives but the focus remains on finding one correct answer, and a final level of reflective thinking in which individuals are able to evaluate a problem from different perspectives in order to make a substantiated judgement (Hofer & Pintrich, 1997; King & Kitchener, 1994, 2004; Kuhn & Weinstock, 2002; Muis, 2007). In the work by King and Kitchener, these three levels are successively labelled as pre-reflective thinking, quasi-reflective thinking, and reflective thinking.

Educational researchers have theorised that these levels of reflective thinking are powerfully related to epistemic beliefs that individuals hold about the construction of knowledge (Hofer, 2002, 2016; Hofer & Pintrich, 1997; Muis, 2007; King & Kitchener, 1994, 2002, 2004; Maggioni, 2010). Reflective thinking stimulates the development of epistemic beliefs, and epistemic beliefs influence the way reflective thinking develops (King & Kitchener, 1994, 2004). A particular view on knowledge influences how individuals understand problems and how they reason about those problems in order to come up with a conclusion (Kitchener, 1983; King & Kitchener, 1994, 2004). For instance, pre-reflective thinkers believe that knowledge is absolute and justified by authority. As a consequence, they 'do not use evidence to reason toward a conclusion, relying instead on a restatement of beliefs or on unsubstantiated personal opinions' (King & Kitchener, 2004, p.6). Those individuals consider ill-structured problems as well-structured problems. At the quasi-reflective level, individuals consider knowledge to be subjective and uncertain. Knowledge may differ between individuals and must be justified by argumentation, but they are not able yet to compare and contrast evidence. They believe that different perspectives address different types of evidence, mainly characterised as opinions, including their own opinion. An important difference with pre-reflective thinkers is that quasi-reflective thinkers now realise that knowledge is constructed. In the reflective stage, knowledge is seen as a relative truth, the best choice in a given context, and justified by contextual considerations. Reflective thinkers have developed evaluative skills that enable them to reason from conflicting perspectives and sources in order to construct underpinned evaluations. King and Kitchener (1994, p. 13) consider the ability of making reflective judgements as 'the ultimate outcome of this progression'. It is

the underlying epistemic beliefs on the construction of knowledge and the problem structure in which, according to King and Kitchener (1994), reflective thinking differs from critical thinking.

To sum up, developing reflective thinking involves challenging one's epistemic beliefs. This can be stimulated by reasoning about an issue based on conflicting information or multiple solutions. By reasoning, a person then arrives at an informed judgment. If this reasoning only results in finding a correct answer, a person's epistemic beliefs are not challenged.

In several domains, such as history (Maggioni, 2010; Maggioni et al., 2004; Maggioni et al., 2009; Stoel, 2017; Stoel et al., 2017; VanSledright & Maggioni, 2016), mathematics (Depaepe et al., 2016; Muis, 2004) and science (Elby et al., 2016), much research has been done on the development of epistemic beliefs and reflective thinking. There is also some research on literary reasoning (Lee et al., 2016). In the grammar domain, some research has been conducted on the development of epistemic beliefs of academic students (Döring, 2020; Elsner, 2020, 2021). Within the communicative paradigm, reflection on language is often mentioned as key to linguistic awareness, but nothing is said about stimulating epistemic beliefs. To our knowledge, no research has yet been conducted on the development of reflective thinking about language in secondary education.

1.3.3 Linguistic sources

Ill-structured problems are the impetus for stimulating reflective thinking. This fits very well with language analysis, because language analysis is an ill-structured knowledge domain rather than a well-structured knowledge domain (Coppen, 2010b, 2013; Coppen et al., 2019; Van Rijt, 2024). This ill-structuredness becomes apparent when language problems are considered for which different linguistic sources contradict each other. These sources reflect on language from one or more of the following perspectives: 'language intuitions', 'language reality' and the 'language rules' (Coppen et al., 2019; Van Rijt & Wijnands, 2017).

Language intuitions are the intuitions individuals have developed in the language context in which they grew up or in which they find themselves. These intuitions include grammaticality and acceptability judgements, but also an awareness of connotations, collocations and semantic or pragmatic meaning. An individual's language intuitions may overlap with those of other language users, but they will sometimes also be contradictory.

Language reality consists of language use as it actually occurs with all its variations and changes. It should be distinguished from language intuitions. Whereas language users may express the intuition that certain language forms are ungrammatical, in reality they may use them rather frequently themselves. While intuitions may be rationalised opinions about language, language reality on the other hand may be caused by external circumstances that cause language users to make mistakes or practical choices.

Language rules refer on the one hand to the prescriptive language rules, which are the (partly unwritten) rules devised to standardise language. If you follow these rules, you meet the standard and therefore speak or write correctly (Milroy & Milroy, 1999). These prescriptive rules are commonly the central focus of the school subject. On the other hand, from a linguistic theoretical point of view, language rules also refer to descriptive language rules, i.e. rules described by linguists. Descriptive language rules explain features of human language, language variation, language change, and language use from different linguistic theories. They do not regulate language, but they describe how language is constructed (Milroy & Milroy, 1999). In this dissertation, the struggle how to define language rules becomes visible. In most chapters (studies) language rules concern the prescriptive language rules because of the educational setting of the studies in which the prescriptive rules are dominant. However, when sources are used to describe language as a phenomenon, language rules refer to descriptive language rules.

Between these perspectives, tensions always exist. When it comes to the correct use of language, there is a tension between language intuition and prescriptive language rules. Take for instance the Dutch language issue of *hun* (them) as a subject in sentences such as *hun hebben het gedaan* (them have done it – ‘they did it’). According to the prescriptive language rules, this use of *hun* as a subject is incorrect, because *hun* (them) is an indirect object form (or a possessive form) and not a subject form (Haeseryn et al., 1997 (Section 5.2.6); Van Bergen et al., 2011; Van Rijt & Wijnands, 2017). However, in language reality the use of *hun* as a subject is quite common, because it specifically refers to persons as opposed to the prescribed form *ze* or *zij* (‘they’) that can also refer to non-animate subjects (Cornips, 2001; Van Bree, 2012; Van Bergen et al., 2011; Van Hout, 1989). So, in this language issue there is a tension between the prescriptive language rules and language reality, whereas language intuition, when consciously expressed, may lean towards the prescriptive rule, and subconsciously follow language reality. These three perspectives are accessible to students from different sources (see Table 1).

For investigating a language issue from the perspective of language intuitions, language users themselves are the source. They can investigate their own language intuitions by introspection, and in comparison, with the personal intuitions of other language users. In this way, a form of intersubjectivity can be reached, although each source in itself is subjective.

For investigating a language issue from the perspective of language reality, primary and secondary sources can be consulted. Primary sources such as written or spoken language corpora, allow for a more objective investigation of language. For Dutch, these include, for example, the newspaper corpus Delpher or the *Corpus Gesproken Nederlands*. Language reality can also be consulted by an internet search, simply comparing the number of occurrences of varying constructions. These primary sources are all descriptive sources; these sources *describe* language reality, but don't *prescribe* a preferred rule. Secondary sources, such as reference grammars and language advice works, offer an overview of language reality (Coleman et al., 2021; Quirk et al., 1985). As mentioned above, although these sources are meant to be descriptive, they are often used for finding the prescriptive language rules (Van der Meulen, 2024).

For investigating a language issue from the perspective of prescriptive language rules, spelling guides, such as *het Groene boekje* and dictionaries can be used. Also in textbooks, language rules are prescribed. Although textbooks are often based on language advice works or reference grammars, the nuanced description of language reality of language advice works or reference grammars is ignored by zooming in only on the variant labelled as standard language or formal language use to teach students an undisputable or safe language rule. For investigating a language issue from the perspective of descriptive language rules, reference grammars or more theoretical grammars such as *Syntax of Dutch* are appropriate sources.

There are also sources that refer to a language issue from multiple perspectives. For example, in (popular) scholarly publications or columns not only language reality and descriptive language rules are addressed but those sources may also refer to the language intuitions of the author (De Hoop, 2016). Understanding sources that present multiple perspectives therefore necessitates that students become aware of the perspectives from which a language issue is addressed.

To conclude, when students are confronted with different linguistic sources on a language issue, they can see how arguments are made for a particular point of view from different perspectives. This can make students aware that language analysis is a 'messy' problem (Coppen, 2010b; Dielemans & Coppen, 2020) that asks for evaluation

of different types of evidence to end up with an underpinned judgement. The confrontation with linguistic sources can be the starting point of a reflective thinking process in which students investigate the language issue, evaluate arguments, and end up with their own more or less reflective judgement.

Table 1. *An overview of different linguistic sources*

	Language intuitions	Language reality	Language rules
Primary sources			
Language users	x		
Language corpora		x	
The internet		x	
Secondary sources			
Textbooks			x
Dictionaries			x
Language advice works		x	x
Reference grammars		x	x
(popular) Scholarly publications	x	x	x
Columns	x	x	x

Note. x = source addresses a language issue from this perspective.

1.3.4 From linguistic sources to linguistic expertise

In the sections above we discussed *linguistic awareness*, *reflective thinking*, and *linguistic sources*. What is the hypothetical relationship between these three concepts?

As we have argued, experiencing doubt or uncertainty is an important motivator for an individual to initiate thinking (Bendixen, 2002, 2016; Bendixen & Rule, 2004; Dewey, 1933; Kienhues et al., 2016; King & Kitchener, 1994, 2002, 2004). We expect linguistic sources to be important triggers of this doubt or uncertainty. This is depicted in Figure 1. Linguistic sources provide our thinking about language issues with different, sometimes even conflicting pieces of evidence, from different contexts. As such, they may make students aware of a principal context dependency of language analysis or judgment. We expect that by consulting these sources, students will be challenged to negotiate that doubt or uncertainty, and evaluate linguistic matters from different perspectives.

How students perform, is dependent on the level of their linguistic reasoning skills and their epistemic beliefs about the language domain (Elsner, 2020, 2021). Pre-reflective thinkers, reasoning from the epistemic view that knowledge is certain and absolute, may search for an unambiguous rule, for example by interpreting language advice as the norm, or in the case of a student by following the teacher or the textbook. When confronted with opposing views of authorities, they may try to make a choice between the two, not being able to derive arguments from both positions to arrive at an own informed judgment. Feeling of doubt or uncertainty might be strongest for quasi-reflective thinkers, because they hold the epistemic belief that different perspectives rely on different types of evidence. When realising that a strict rule cannot be given for an ill-structured language problem, their reaction can be twofold, namely a) reasoning that 'anything is possible' or b) formulating a forced rule that seems to be true in all contexts. Reflective thinkers on the other hand hold the epistemic belief that knowledge is constructed on the basis of information from different sources and that thorough evaluation is the key to reaching a balanced conclusion. This belief might support them to analyse the problem from different perspectives to arrive at an informed and reasoned solution. Reflective thinkers may also show the areas of tension between language rules, language reality and language intuitions, have an eye for contextual differences and make comparisons with related language issues. The absence of the certainty of an unequivocal solution is not a problem for reflective thinkers, it does not make them indifferent or doubtful, but rather encourages reflective thinking.

In the development of linguistic awareness, epistemic beliefs about language play an important role, since they guide one's reasoning about language. This means that the higher the level of reflective thinking about language, the more students' epistemic beliefs about language are developed, the more students' linguistic awareness is developed (as indicated by the arrows in Figure 1). The highest level of making reflective judgements about ill-structured language problems is the level where linguistic experts reason about language (Coppen et al., 2019; Dielemans & Coppen, 2020; Van Rijt, 2024). This level can be seen as the linguistic counterpart of *literary competence* (Witte, 2008), which has been formulated in literary theory by analogy with Chomsky's linguistic competence (Chomsky, 1965). To avoid confusion with this concept from Chomsky's theory, we label this expert level following Alexander (2003, 2005) as *linguistic expertise*. This level is characterised by a high quality of linguistic knowledge, linguistic reasoning, nuanced epistemic beliefs about language, and individual interest in linguistic problems.

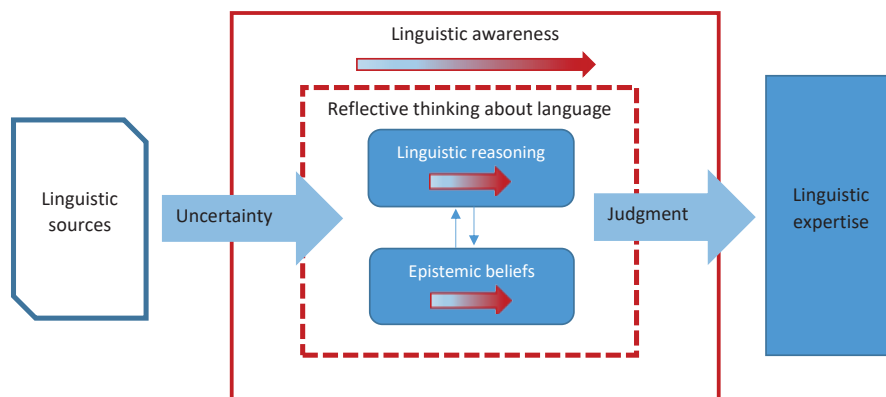


Figure 1. Development of linguistic expertise by using linguistic sources

1.4 Research questions and methodology

From the discussion above, it appears that linguistic sources can be the impetus to develop linguistic reasoning skills, but because students in traditional grammar education have not developed these skills (Coppen, 2010b; Fontich, 2014; Van Rijt, 2020; Verhagen, 2010), consulting linguistic sources is difficult for them (Coppen, 2013). This dissertation examines how this circle can be broken. The main goal is to get insight into how the use of linguistic sources in L1 language education can foster students' reflective thinking about language issues. The overarching research question of this dissertation can be formulated as follows:

How does the use of linguistic sources in pre-university grammar education contribute to the development of students' reflective thinking about language? The following three questions guided this research:

1. How can teachers' and students' reflective thinking about language be characterised in current L1 grammar education?
2. What are pedagogical means to teach students about the workings and structure of language in a more reflective way, and how do teachers experience the classroom implementation of these pedagogical means?
3. What kind of scaffolding is needed to stimulate students' reflective thinking when being confronted with conflicting sources about a language issue?

1.4.1 Methods

This dissertation can be characterised as multidisciplinary mixed method study. It is multidisciplinary because it combines linguistics (language issues viewed by means

of linguistic sources) with psychology (reflective thinking) and pedagogy in the L1 grammar domain. It is a mixed method study, because to address the three research questions in order to answer the overarching question of this dissertation, quantitative and qualitative studies were conducted (Creswell, 2009). First, quantitative studies were conducted to get insights into teachers', students', and experts' epistemic beliefs about grammar (Chapters 2 and 3). Second, qualitative studies were employed to explore how teachers experience reflective thinking in the classroom by using a pedagogical template and how students' reflective thinking became visible by using this template (Chapters 4 and 5). Finally, this dissertation ends with a sequential mixed method study (consisting of both a qualitative study and a quantitative study) to get insights into the scaffolding needed for stimulating students' reflective thinking about language, when using linguistic sources (Chapter 6).

1.4.2 Participants

In this dissertation, different stakeholders were involved: experts, teachers, and pre-university students participated in different studies. **Linguistic experts** were involved in a questionnaire about measuring epistemic beliefs (Chapter 3) in order to compare their epistemic beliefs about language analysis with those of pre-university school students. This was done to give us more insight into the required development of epistemic beliefs for developing linguistic expertise.

The **teachers** and **pre-university students** in this dissertation come from the Netherlands and Belgium. The choice for conducting this research in two Dutch speaking countries was twofold. First, the starting point of this research was the idea of implementing the Dutch reference grammar (i.e. *Algemene Nederlandse Spraakkunst*) in the upper half of pre-university education. Since this reference grammar is created in a Dutch-Belgian collaboration, it was interesting to investigate this implementation in these two countries. Second, grammar education in these countries differ from each other. In the Netherlands, grammar education, mainly taught in a traditional way (Coppen, 2010b; Dielemans & Coppen, 2020; Van Rijt, 2020), stops at the end of the lower half of secondary pre-university education (often at end of grade 9, age 15 years). In the Dutch speaking part of Belgium, grammar education is part of the whole curriculum. Moreover, the use of reference grammars in the classroom meets the curricula in Flanders, which prescribes that students must learn to read simple scientific texts (VVSKO 2014). Therefore, it is interesting to compare these two contexts.

Teachers participated in the studies in chapter 2 and chapter 5. In chapter 5, **teachers**, who all had a master degree in teaching Dutch Language and Literature,

participated in the Professional Learning Community, together with the author of this dissertation. In the design process two **experts** also participated for monitoring the process and content of the assignment.

The participating **students** are 11th grade pre-university students from different schools in Belgium and the Netherlands (aso and vwo, age 15-18 years). The choice for this level of education was made because it was expected that 11th grade students would have the basic content knowledge about grammar to understand linguistics sources. Another consideration for focusing on this grade was that the literature shows that reflective thinking starts to develop at this age (Alexander, 2003; King & Kitchener, 2004). Students participated in the studies of Chapter 3, 5, and 6 of this dissertation. Dutch 12th graders (vwo, age 17-18 years) also participated in study of Chapter 3 in order to compare them with 11th graders with regard to their epistemic beliefs.

1.4.3 **Studies**

To address the three research questions five studies were conducted. The studies in Chapter 2 and 3 were conducted for answering the first research question, the studies in Chapter 4 and 5 for answering the second research question, and the study in Chapter 6 for answering the third research question. A schematic representation is given in Figure 2.

The study in Chapter 2 is a quantitative study investigating teacher beliefs on reflective thinking and the use of linguistic sources in the classroom, as well as their familiarity with linguistic concepts. This was done by a questionnaire among 101 Dutch language teachers. The items to measure teachers' reflective thinking were strongly based on a questionnaire by Maggioni (2004) for measuring reflective thinking by history teachers. In addition, two commonly used textbooks in the Netherlands were analysed which are likely to reflect existing teachers' beliefs.

The study in Chapter 3 reports on a quantitative study that examines students' underlying epistemic beliefs for reflective thinking about language issues compared to experts' underlying epistemic beliefs by means of a questionnaire. A questionnaire for measuring students' epistemic beliefs about history by Stoel et al. (2017) was transposed into the domain of grammar. This questionnaire has been completed by 128 11th graders (pre-university education) from Belgium, 119 11th graders and 53 12th graders from the Netherlands, and seven linguistic experts.

The study in Chapter 4 develops a model for a grammar pedagogy, based on a literature study. This model aims to enable students to develop their thinking skills in investigating language by using linguistic sources and to develop their epistemic beliefs toward linguistic sources. The model is based on Moseley et al. (2005) concerning learning cognitive thinking and on the Reflective Judgment Model of King and Kitchener (1994).

The study in Chapter 5 focuses on the implementation of this model for grammar pedagogy in the classroom. Following a Lesson Study approach, three Belgian teachers, a teacher educator, and a curriculum developer developed and evaluated lesson materials based on the template. In this study, the principle of co-creation was followed and the teachers mainly made the educational design decisions. The author of this dissertation took the role of knowledgeable other. In a qualitative study, we examined how the teachers responded to and evaluated these lessons in which their 11th grade students ($N = 78$) worked with this model. Finally, we also qualitatively examined how students responded to the lessons.

The study in Chapter 6 begins with a small exploratory qualitative study (pilot study) using data from study 4 in which 11th grade students ($N = 41$) from Belgium and the Netherlands consult authentic linguistic sources. The results of this study prompted a quantitative experimental intervention study with the aim of investigating what kind of scaffolding is needed for students to become more proficient in reflective thinking about linguistic sources. The method of this study was based on a study by Barzilai and Ka'adan (2017). In total, 120 Dutch 11th grade students participated in this intervention study.

Finally, **Chapter 7** presents the main findings from the individual studies and synthesises them in an overall conclusion and discussion. This is followed by a discussion of the theoretical and practical implications for students, teachers, teacher educators, and curriculum developers. In addition, directions, contributions, and limitations for further research are provided.

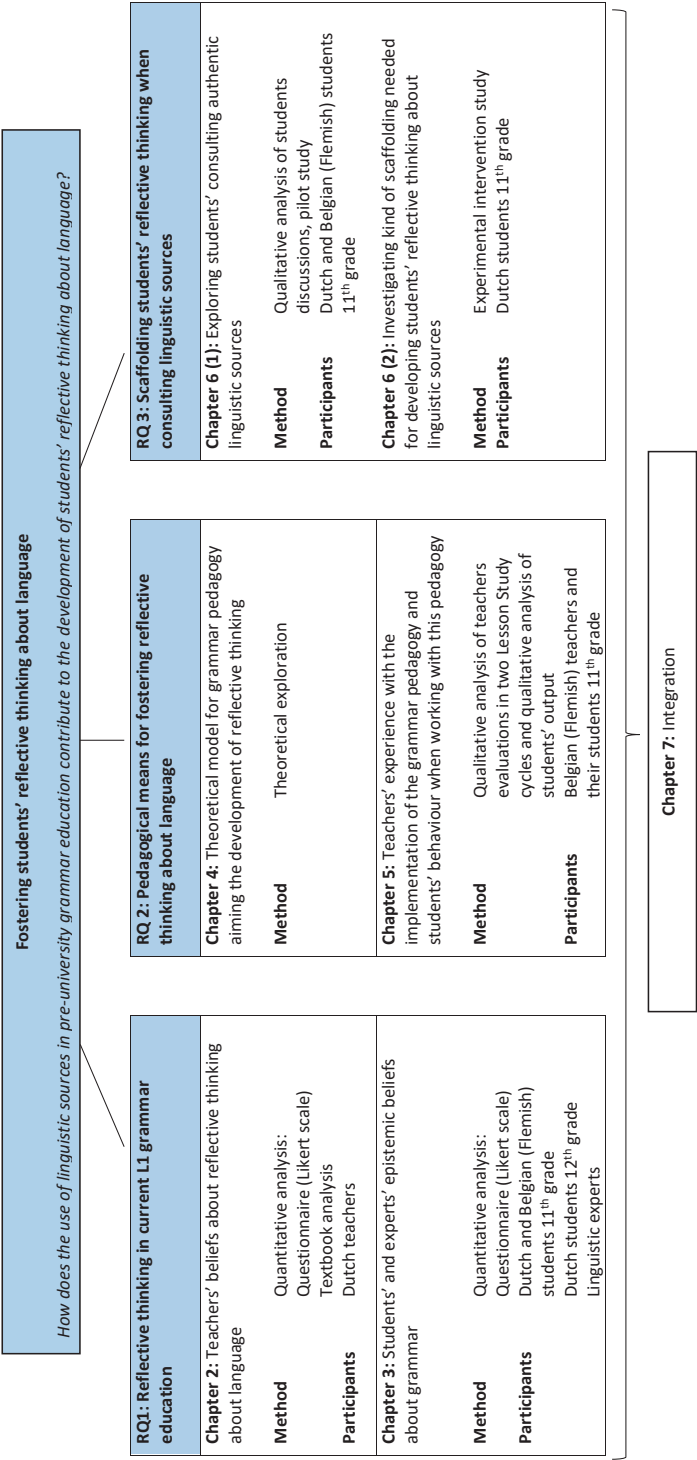


Figure 2. Schematic representation of the doctoral dissertation

1.5 Organization

This dissertation mainly consists of journal articles. Chapters 2 to 5 consist of four stand-alone articles, each published in an international peer-reviewed journal. Because the articles were written to be read in isolation, there is some overlap between them in the introductions and discussions. However, this overlap allows readers to read only the articles on one research question or even just one article without losing sight of the context of this study.

These chapters have been published in the following journals:

- Chapter 2 has been published as Van Rijt, Wijnands and Coppen (2019) in *L1- Educational Studies in Language and Literature*.
- Chapter 3 has been published as Wijnands, Van Rijt, and Coppen (2022) in *L1- Educational Studies in Language and Literature*.
- Chapter 4 has been published as Wijnands, Van Rijt, and Coppen (2021) in *Language Awareness*.
- Chapter 5 has been published as Wijnands, Van Rijt, Stoel, and Coppen (2022) in *Linguistics and Education*.

Chapter 6 has not yet been submitted for publication. This article to be submitted was written by Wijnands, Stoel, Gijsen, and Coppen.

In the section ‘Contribution of the authors’ (at the end of this dissertation), the precise contributions of the mentioned authors of Chapter 2 to 6 will be further explained.

All data of this research project have been stored in de Radboud Data Repository (<https://data.ru.nl>). Raw data can be found at <https://doi.org/10.34973/fb7q-os59>, data describing the research process can be found at <https://doi.org/10.34973/5mmq-vq87>, open access data can be found at <https://doi.org/10.34973/hsrc-9760>.



Chapter 2

Dutch teacher beliefs on linguistic concepts and reflective judgement in grammar teaching

Corresponding article:

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Abstract

Teacher beliefs have been shown to play a major role in shaping educational practice, especially in the area of grammar teaching – an area of language education that teachers have particularly strong views on. Traditional grammar education is regularly criticised for its focus on rules-of-thumb rather than on insights from modern linguistics, and for its focus on lower-order thinking. A growing body of literature on grammar teaching promotes the opposite, arguing for more linguistic conceptual knowledge and reflective or higher-order thinking in grammar pedagogy. In the Netherlands, this discussion plays an important role in the national development of a new curriculum. This study explores current Dutch teachers' beliefs on the use of modern linguistic concepts and reflective judgment in grammar teaching. To this end, we conducted a questionnaire among 110 Dutch language teachers from secondary education and analysed contemporary school textbooks likely to reflect existing teachers' beliefs. Results indicate that teachers generally appear to favour stimulating reflective judgement in grammar teaching, although implementing activities aimed at fostering reflective thinking seems to be difficult for two reasons: (1) existing textbooks fail to implement sufficient concepts from modern linguistics, nor do they stimulate reflective thinking; (2) teachers lack sufficient conceptual knowledge from linguistics necessary to adequately address reflective thinking.

2.1 Introduction

Historically, grammar teaching has been one of the cornerstones of L1 language education worldwide, dating back at least to classical antiquity (Kraak, 2006, p. 40; Seuren, 1998, p. 26-27). Since the 1970's, grammar teaching has been increasingly debated under the influence of social changes and the emergence of new branches of linguistics, such as sociolinguistics and pragmatics. These international developments gave rise to a new paradigm in language teaching, most commonly referred to as the communicative paradigm (cf. Bonset & Rijlaarsdam, 2004; Sawyer & Van de Ven, 2007), in which – at least in the ideological sense – educational attention shifted from teaching grammar (and literature) to teaching communication skills.

In subsequent years, this has led to considerable changes in the educational curriculum of several countries. In many cases, grammar shifted from a key position in the curriculum to a peripheral one, sometimes even disappearing from the curriculum altogether. In countries where the latter happened, grammar is starting to make a (strong) comeback. Such developments can be observed in the United States (Kolln & Hancock, 2005), the United Kingdom (Hudson & Walmsley, 2005; Myhill, 2018), Australia (Derewianka, 2012), Brazil (Cosson, 2007), Germany (Funke, 2018) and Spain (Fontich & Garcia-Folgado, 2018), indicating that (explicit) grammar teaching has resurfaced as a topic of interest for policy makers and researchers (cf. Locke, 2010). In other educational jurisdictions, such as the Netherlands, traditional grammar education has not disappeared from educational practice at all (Van Gelderen 2010, p. 110).

In recent years, the question that is at the heart of the still quite lively discussions on grammar seems to have shifted from 'why teach grammar at all?' (cf. Myhill, 2000) to (a) 'which grammar should be taught?', and (b) 'how should grammar be taught?' (cf. Fontich & Camps, 2014; Locke, 2010)¹. This Chapter addresses these questions from an empirical perspective, with a special focus on the related teacher beliefs and textbooks, since these are known to play a major role in shaping classroom practices (e.g. Borg, 2003; Watson, 2015a, 2015b). We will first provide some background to question (a) and (b) and then we will zoom in on the role of teacher beliefs regarding these questions. In the discussion, we will address these questions, combined with the results from our research, from a perspective of curriculum development (cf. Van der Aalsvoort & Kroon, 2015).

¹ In spite of this shift, the question 'why teach grammar?' remains relevant.

2.1.1 Which grammar should be taught?

The question which grammar should be taught has received a lot of attention (Fontich, 2014, 2016; Fontich & Camps, 2014; Hulshof, 2013). Several researchers have sought the answer to this question in restoring the bond between linguistic theory and grammar education. They argue that conceptual knowledge from modern linguistic theory could well be used to provide grammar education with a common, theoretically sound metalanguage, providing teachers with better ways of conveying grammatical knowledge and students with deeper insights into the workings and structure of language (Carter, 1982; Hudson, 2004; Denham & Lobeck, 2010; Mulder, 2011, Van Rijt & Coppen, 2017; Watson & Newman, 2017; Van Rijt et al., 2018). Some of these researchers suggest that identifying relevant conceptual knowledge from theoretical linguistics is a prerequisite for pedagogically enriching grammar education, both for writing education (cf. Fontich, 2016; Watson & Newman, 2017) as well as for enhancing language awareness in general (cf. Van Rijt & Coppen, 2017; Van Rijt et al., 2018).

Van Rijt and Coppen (2017) report on a general agreement between experts of theoretical linguistics regarding concepts from modern linguistic theory that are important for grammar education. Experts agreed on the importance of 24 concepts in the syntax-semantics interface (cf. results section). Using these concepts as a basis for grammar teaching pedagogy will arguably strengthen grammatical awareness and understanding (as is indicated by Watson & Newman, 2017), giving rise to the concept of ‘conscious grammar skills’ (cf. Manifest Nederlands op School, 2016). Grammar education based on conscious grammar skills strives to strengthen grammatical understanding by the classroom application of linguistic concepts. However, in spite of the agreement on grammatical concepts from Van Rijt and Coppen (2017) there is still a gap between conceptual knowledge from modern linguistic theory and traditional grammatical terminology: it is not at all clear which terms from traditional grammar education can be pedagogically linked to which linguistic concepts, and how this should be done.

There are several ideas about this. For example, Van Rijt (2016) and Van Rijt et al. (2018) propose to introduce concepts such as *semantic roles*, *valency* and *syntactic functions* when explaining what passives are in the pedagogical arrangements for the passive construction, with specific attention to what is known in linguistic theory about the so called ‘mapping problem’ (cf. Bresnan et al., 2016). Another example is using the general concept of *predication* (cf. Van Eynde, 2015) as the basis for understanding several traditional grammatical categories, such as primary and secondary predicates, adjectival phrases and predicate nominals (cf. Coppen, 2011a;

Van Rijt, 2017), or for using the concept of *valency* (cf. Perini, 2014) as a foundation for understanding the difference between obligatory (e.g. complements) and facultative elements (adjuncts) (e.g. Van Calcar, 1983; Van Rijt, 2013, 2016).

Although there are some ideas for implementing conceptual knowledge in order to gain a better understanding of the terminology from traditional grammar, empirical evidence for its effectiveness in the classroom is currently lacking. Future research exploring this is highly desirable (Fontich & Camps, 2014; Hulshof, 2013).

2.1.2 How should grammar be taught?

Regarding question (b), ‘how should grammar be taught?’, there appears to be a general preference for contextualised grammar teaching, in accordance with the aforementioned communicative paradigm and its instrumental view of language. For example, in Australia and New Zealand, a Hallidayan (i.e. ‘functional’) view on grammar is maintained (Christie, 2010; Derewianka, 2012; Exley & Mills, 2012; Fench, 2010; Halliday & Webster, 2016; Jones & Chen, 2012). This general preference for communicative goals also seems to be in line with research into the relationship between grammar teaching and literacy development (e.g. Locke, 2010; Myhill et al., 2012). Whether or not teachers adopt such a contextualised approach to grammar teaching, the question remains ‘how teachers can facilitate higher levels of metalinguistic understanding’ (Chen & Myhill, 2016, p. 107). Reflecting on experiences in language learning seems to be beneficial for achieving this goal (cf. Van Velzen, 2016).

According to Fontich (2014), the role of reflection should not be underestimated. He states that dialogue is such a means of facilitating linguistic understanding and should therefore be at the core of grammar teaching. Talking about grammar is likely to help students observe language from a broad perspective and from different points of views, which will lead to the development of their reflective attitude. Fontich (2014, p. 273) does not only describe this reflective attitude as the willingness of students to argue their positions in dialogue about grammar, but also as the willingness to ask others about their position, and to change their opinion. A reflective attitude is in turn a prerequisite for reflective thinking, and it might also be deemed as the permanent source of grammar learning (cf. Fontich, 2016).

According to Lipman (2003, p. 26) reflective thinking is ‘thinking that is aware of its own assumptions and implications as well as being conscious of the reasons and evidence that support this or that conclusion’. Both Vygotsky and Dewey, and many of their heirs, defined reflectivity as an important key for learning. They consider

reflective thinking as a meaning-making process in which a learner moves from one experience into the next with a deeper understanding of its relationships with and connections to other experiences and ideas (Dewey, 1933; Kember et al., 2000; Kember et al., 2008; King & Kitchener, 1994; Rodgers, 2002; Vygotsky, 1962).

Dewey (1933) states that true reflective thinking concerns the recognition that a genuine problem exists and that this problem cannot be addressed by formal logic alone (King & Kitchener, 1994, p. 6). To solve the 'condition of mental unrest and disturbance' (Dewey, 1933, p. 13) people make a judgment about this problematic issue, also labelled as an ill-structured problem (King & Kitchener, 1994, 2000). The development from non-reflective thinking to reflective thinking has been described in the framework of King and Kitchener (1994) and is called the Reflective Judgment Model. This model distinguishes three main levels: a pre-reflective level, a quasi-reflective level and a reflective level. Individuals reasoning in a pre-reflective manner assume that knowledge is absolute, objective, certain or temporarily uncertain in some areas, because the evidence has not yet become clear. They also assume that answers can be given by authorities (King & Kitchener, 1994; Muis, 2007). Individuals reasoning with a quasi-reflective stance assume that knowledge can differ among individuals. Individuals can think differently in various contexts or can think from multiple perspectives. 'Interpretation is inherent in all understanding; therefore, no knowledge is certain' (King & Kitchener, 2002, p. 253). In the highest level of reflective thinking, the reflective level, individuals realise that knowledge is uncertain and must be understood in relationship to context and evidence. Reflective thinkers realise that a problem can face different possible solutions. Such thinkers can compare and evaluate these solutions to come to a justification of the problem. Because of this, they can also take different points of view into account. When confronted with an ill-structured problem, reflective thinkers use higher-order thinking skills, such as analysing, evaluating and creating from Bloom's well-known taxonomy, whereas pre-reflective thinkers use lower-order thinking skills, such as remembering, understanding and applying (see Kember, 2002, 2008).

In traditional L1 grammar teaching, students mostly remain non-reflective or pre-reflective thinkers because of the restriction to lower-order objectives as remembering, comprehending and applying, aimed at avoiding uncertainties, which is even strengthened by a general emphasis on the prescriptive norm (cf. Berry, 2015). Students are not encouraged to think about possible different solutions for grammatical problems – instead, they are told to restrict themselves to a prescriptive norm, thus causing them to remain stuck on their initial beliefs (cf. Coppen, 2009; Fontich, 2014). They are not stimulated to surpass the level of habitual action and

understanding. In contrast, a more descriptive approach to grammar, more in line with current linguistic thinking (Hudson & Walmsley, 2005), would already require a much more reflective way of thinking, encouraging students to think beyond the prescriptive norm and to integrate different perspectives on grammar (Fontich, 2014).

To achieve this more descriptive approach to grammar, students can consult corpora of spoken or written language (Van Rijt & Wijnands, 2017) or reference grammars in which the variety of language reality is described (Wijnands, 2016). This language reality is illustrated with many examples from the standard language and its varieties. By using reference grammars students can learn how to analyse language from three perspectives: their own language intuitions, language reality and the prescriptive norm. This enables them to develop a more critical and reflective attitude towards language which will enhance their linguistic awareness (Fontich, 2014). Students would thus reach the level of *reflection* or even of *critical reflection*. Reaching this state of reflection is most likely possible by letting students engage in exploratory talk (e.g. Mercer, 2005; see also Fontich, 2014).

According to Ribas et al. (2014, p. 15), ‘there are close ties between grammatical concepts and studying and reflecting procedures’. A real comprehension of the more abstract concepts of modern linguistic theory, in this view, is a prerequisite for the development of reflective thinking. As such, the development of both conceptual knowledge and reflective thinking can be seen as the target of grammar education.

In spite of all this attention to bridge the gap between theoretical linguistics and L1 grammar education, and notwithstanding communicative or functional goals at the center of current ideology, grammar teaching in L1 classrooms is still mainly traditional in nature throughout the world. Grammar teaching still often consists of isolated parsing exercises that seem to be mostly form-focused (Graus & Coppen, 2015; Watson, 2015a). It generally seems to be associated with rules of thumb and superficial tricks (Berry 2015; Coppen, 2009), which causes many students to look upon these as the target of grammar teaching rather than the underlying grammatical concepts or insights. If grammatical insights are being addressed at all, these are commonly not rooted in modern linguistics (Van Rijt et al., 2018).

In terms of Anderson and Krathwohl’s (2002) and Bloom’s (1956) taxonomy, learning objectives in grammar education are limited to remembering rules and isolated forms, and applying superficial rules-of-thumb. No real comprehension is aimed at, and analysis is again limited to applying predefined sequences of rules-of-thumb. On the whole, grammar education comes down to instructions to avoid errors or

grammatical problems, both in language use as well as in grammatical analysis (Coppén, 2009). As such, it fails to address uncertainties, which are necessary for the development of reflective thinking (cf. King & Kitchener, 1994). Subsequently, hardly any reflective development is achieved by current grammar education.

In conclusion: both reflective thinking and linguistic conceptual knowledge are practically absent in current grammar education, although in the educational literature, these aspects are considered crucial for grammar teaching (Coppén, 2011a; Ribas et al., 2014; Van Rijt & Coppén, 2017). However, much still remains unclear about how teachers think about these approaches to grammar teaching. In other words: what are their *teacher beliefs* regarding conceptual knowledge and reflective thinking in grammar teaching?

Central to the current study is what Dutch language teachers believe is important in grammar teaching and why. If teachers have different beliefs than the ideals promoted in the educational literature (e.g. Ribas et al., 2014; Van Rijt & Coppén, 2017; Van Rijt et al., 2018) and in the manifesto (Manifest Nederlands op School, 2016) cited before, grammar education will be difficult to improve accordingly. Therefore, gaining knowledge on these beliefs is of great importance. After all, in recent years, it has become clear that *teacher beliefs* have a major role to play in (language) teachers' pedagogical choices. For example, it is well-established that teachers mostly teach in ways that resemble the way in which they themselves were taught (Borg, 2003; Holt Reynolds, 1992; Hudson, 2001; Phipps & Borg, 2009; Watson, 2015a; Watson, 2015b), and it is widely acknowledged that teacher beliefs shape language classrooms.

Even though teacher beliefs are at the core of educational research, both for existing teachers as well as for preservice teachers (e.g. Giovanelli, 2015, 2016; Graus & Coppén, 2015), little is known about these beliefs in Dutch L1 grammar education. In the present study, we adopt Borg's (2003, p. 81) definition of *teacher beliefs*: 'what teachers know, believe and think', and we focus in particular on the two aspects of the teacher's beliefs that are perceived as important in much of the educational literature on grammar teaching: conceptual knowledge (derived from or related to modern linguistic theory) and reflective thinking (in the sense of King & Kitchener, 1994). This focus also has great relevance beyond the Dutch context, since to our knowledge, this is the first study to address these specific aspects of teacher beliefs in grammar teaching.

We will investigate these beliefs by conducting a questionnaire complemented by an analysis of frequently used school textbooks. The questionnaire aims to give direct

insights into self-reported teacher beliefs, whereas the analysis of textbooks provides more indirect data on teacher beliefs, since in the Netherlands, school textbooks are created with the help of teachers, i.e. teachers create and review textbooks, and advise editors on new editions.

2.2 Method

2.2.1 Questionnaire

According to Maggioni (2004, p. 179), the most effective way to measure (epistemic) beliefs, is to conduct a questionnaire. Various other methods, such as interviews or essays, prove to be very time-consuming and more importantly, far more difficult to score properly. Moreover, in previous research into epistemic beliefs, it has become apparent that social desirability issues arise when using interviews. Additionally, according to Maggioni (*ibid.*, p. 179) ‘written interviews, for example, have increased the chance that individuals do not engage the problem deeply or quit trying’.

Beliefs on perceived grammatical knowledge too are often measured by questionnaires (cf. Berry, 1997; Macken-Horarik et al., 2018). Therefore, in order to gain insights into the teacher beliefs regarding both conceptual knowledge and reflective thinking in grammar teaching, we questioned in-service secondary school teachers of Dutch Language and Literature via an online questionnaire using Qualtrics ($N = 110$). The questionnaire was distributed amongst teachers of Dutch through a Facebook group for Dutch language teachers and per e-mail and was accessible for two weeks. Teachers could anonymously take the questionnaire and they could win a book about language for their participation. The questionnaire was pretested on preservice teachers from two separate universities of applied sciences ($N = 19$), which led to some improvements in the formulation of questions or items.

2.2.2 Participants

A total of 110 teachers participated in this study. The majority of teachers mainly taught havo/vwo classes ($N = 73$); the other 37 mainly taught at the vmbo/mbo level.² 45 teachers held a grade one qualification, for the highest classes, whereas 65 teachers were grade 2 certified, which means they can only teach in the lower classes. Their experience as a teacher in Dutch language and literature ranged

² Vmbo (voorbereidend middelbaar beroeps onderwijs = pre-vocational secondary education; mbo (middelbaar beroeps onderwijs = secondary vocational education; havo (hoger algemeen voortgezet onderwijs = senior general secondary education; vwo (voorbereidend wetenschappelijk onderwijs = pre-university education).

from 0-5 years ($N = 40$), 6-10 years ($N = 32$), 11-15 years ($N = 18$), 16-20 years ($N = 10$) or >21 years ($N = 10$). The vast majority of teachers indicated using a textbook by an educational publisher in their grammar teaching ($N = 97$). The two most commonly used textbooks were *Nieuw Nederlands* ('New Dutch', $N = 54$); *Op Niveau* ('On level', $N = 20$) (cf. next section).

2.2.3 Outline of the questionnaire

The questionnaire was divided into three main sections: (1) reflective thinking in the context of grammar teaching, (2) teachers' beliefs regarding conceptual knowledge and (3) teachers' contentment with the textbook they were using. All items were randomised within each section.

In the first of these sections, regarding reflective thinking, participants scored items on a five-point Likert scale (ranging from *fully disagree* to *fully agree*), which was strongly based on the validated items Maggioni (2004) used for reflective thinking in history classes (cf. Appendix A for the items we used in this section). The items were designed to measure pre-reflective³ (Cronbach's $\alpha = .62$), quasi-reflective (Cronbach's $\alpha = .69$) and reflective thinking (Cronbach's $\alpha = .82$) in the grammar classroom and also included some items with negative loadings to mirror reflective thinking. On average, the scale had a decent internal validity (mean Cronbach's $\alpha = .71$). Since we measured three categories with two extremes (pre-reflective versus reflective), we used a Pearson's correlation to verify if participants did not score the same on both scales (e.g., having a high score on both the reflective and pre-reflective scale). Pearson's r indicated a significant negative correlation between the pre-reflective and the reflective scale ($r = -2.14$, $p = .025$, two-tailed), indicating that the scales were indeed answered to differently.

The second section asked teachers to score how familiar they were with the grammatical concepts from Van Rijt and Coppen (2017) on a five-point scale (ranging from *I have no idea what this concept entails* to *I can effortlessly explain this concept*). This scale had an excellent internal validity (Cronbach's $\alpha = .94$).

Additionally, this section aimed to gain insights into how familiar teachers are with two key concepts from the recent literature on grammar education in The Netherlands, namely *predication* and *valency*. To establish whether or not teachers

³ Note that in the pre-reflective scale, we deleted one item that appeared to correlate poorly with most of the other items. This is probably due to a negative formulation in the question. Removing this item increased Cronbach's α from .53 to .62.

might refer to these concepts, either implicitly or explicitly, we let teachers respond to statements that are indicative of referring to either concept.

The final section of the questionnaire, which had a very good internal validity as well (Cronbach's $\alpha = .89$), was designed to measure the extent to which teachers were satisfied with the textbook they used for grammar teaching. In an open question, teachers could elaborate on the scores they had given. We analysed these open questions by dividing them into categories in a grounded theory approach consisting of one cycle (cf. Strauss & Corbin, 1990). We created a category if a certain response occurred three times or more.

2.2.3 Analysis of contemporary textbooks

In The Netherlands, textbooks are being produced by educational publishers in cooperation with teachers. Therefore, textbooks aim to reflect existing teacher's practices as well as possible. Furthermore, because teachers play an active role in creating these textbooks, an analysis of existing school textbooks should give insights into teachers' beliefs, especially when combined with teachers' contentment with such textbooks (cf. previous section).

Based on the participants' answers in the questionnaire, we selected the two most frequently used textbooks used in Dutch grammar lessons (one of which was co-authored by one of the researchers). We analysed these textbooks to establish to what extent they offer opportunities for teachers to work on reflective thinking and conceptual knowledge in grammar classrooms.

Both textbooks were analysed for two distinct educational levels: vmbo-b/k (one of the lowest levels of lower pre-vocational secondary education) and vwo (pre-university education, i.e. the highest level of secondary education). We examined one particular edition of each textbook. For *Nieuw Nederlands*, we analysed the fifth edition; for *Op Niveau*, we analysed the first edition. We chose editions that were not the newest edition (because these editions are not yet implemented in most schools), but the edition prior to that one. That way, we could guarantee examining a recent edition that is also commonly used in classrooms. This is important because we wanted to make sure that our analysis would be a reflection of the current state of affairs.

Because we were looking for evidence of reflective thinking in these textbooks, we applied a grounded-theory analysis (Strauss & Corbin, 1990) with sensitising concepts (cf. Bowen, 2006) from Bloom's (1956) taxonomy. According to Moseley et al. (2005, p. 313), who considers the taxonomy of Bloom as a 'three-tier model', the

first two steps of thinking consist of *information gathering* and *building understanding*, the latter being ‘relatively simple ways of understanding, elaborating and using what is known’. These two stadia refer to the lower-order thinking stadia of Bloom’s taxonomy, namely remembering, understanding and applying. The third step of thinking, namely *productive thinking* refers to higher-order thinking, which Moseley et al. (2005, p. 313) describe as ‘a learning process which leads to deeper understanding of the nature, justification, implications, and value of what is known’. Although Moseley et al. (2005) suggest that reflective thinking can take place irrespective of the cognitive stage, we argue that higher-order thinking provokes considerably more reflective thinking than lower-order thinking.

We were also interested in the extent to which these textbooks introduced linguistic concepts other than the conceptual terminology from traditional school grammar. To establish this, we looked at whether or not we could determine if any linguistic concepts from Van Rijt and Coppen (2017) were explicitly present, again adopting a grounded theory approach. We also looked for implicit occurrences, since it is known that in the literature on grammar teaching too, if modern linguistic concepts are being discussed at all, this happens mostly in an implicit way (cf. Van Rijt et al., 2018). Full agreement on the implicit occurrences was reached between the authors.

Our unit of analysis was twofold: we examined the theoretical sections of each grammar chapter as well as the assignments or exercises that followed. It is important to note that no other sections of the textbooks were taken into account, such as the spelling sections or the ‘language contemplation’ sections, since these have a very different focus than the grammar paragraphs.

2.3 Results

2.3.1 Questionnaire: Reflective thinking in the context of grammar teaching

To gain insight into teachers’ declared practice, teachers were classified according King and Kitchener’s (1994) three levels of reflective thinking. The Reflective Judgement Model should be seen as a continuum with three anchor points. We considered the area between the pre-reflective and the quasi-reflective anchor point the pre-reflective level. Similarly, the area between the quasi-reflective anchor point and the reflective anchor point was seen as the quasi-reflective level. This left us with a final level, which is the reflective level.

We labelled teachers predominantly *pre-reflective* if they scored high ($M > 3.5$) on the pre-reflective scale and low ($M < 3.5$) on both the quasi-reflective and the reflective scale. This restriction was formulated because pre-reflective thinkers are unable to suddenly think more reflectively. The opposite does hold: (quasi-)reflective thinkers can, if the circumstances call for it, adopt pre-reflective thinking styles. These criteria applied to 13 teachers (11.8%).

Likewise, teachers were labelled *quasi-reflective* if they scored high ($M > 3.5$) on the quasi-reflective scale, but $M < 3.5$ on the reflective scale, since this would lead to those teachers being labelled as reflective. These indicators applied to 16 teachers (14.5%).

Reflective teachers were characterised by a high score on the reflective scale ($M > 3.5$), without any further restrictions because of aforementioned reasons. This indicator was applicable to 53 teachers (48.2%). This division accounts for 82/110 teachers (74.5%). The remaining 28 teachers could not be classified indistinctly – an important point to which we return in our discussion.

Since linguistic sources (such as language advise books or reference grammars) can help teachers to grow towards the reflective level in terms of King and Kitchener (1994), we also asked teachers if they use linguistic sources themselves if they are confronted with a grammatical problem. 106 teachers (96.4%) claim to do so; only 4 teachers (3.6%) say they don't ever use linguistic sources. 58 teachers (52.7%) also report that they let their students use linguistic sources in their grammar lessons. The remaining 52 teachers (47.3%) report that they don't work with such sources in their grammar teaching.

To determine whether there were significant differences between teachers' qualifications (grade 1 or 2) and reflectivity, we conducted an independent samples T-test for each of the reflectivity scales. We conducted the same tests for the relationship between teaching level (vmbo/havo-vwo) and reflectivity. See Table 1 for means and standard deviations:

Table 1. Differences between teachers' qualifications and reflectivity scales.

Reflectivity	Grade	N	M	SD	Teaching level	N	M	SD
R	2	65	3.20	0.83	(v)mbo	37	2.88	0.85
	1	45	3.71	0.49	havo/vwo	73	3.67	0.53
QR	2	65	3.34	0.73	(v)mbo	37	3.08	0.77
	1	45	3.82	0.47	havo/vwo	73	3.78	0.49
PR	2	65	3.06	0.76	(v)mbo	37	3.08	0.76
	1	45	2.73	0.55	havo/vwo	73	2.85	0.65

Note. This Table demonstrates means and standard deviations for each reflectivity scale (reflective (R), quasi-reflective (QR) and pre-reflective(PR)) per qualification (first and second grade qualifications) and teaching level ((v)mbo and havo/vwo).

Levenes Test for Equality of Variances indicated unequal variances for all scales regarding qualification. For teaching level, unequal variances were found for the (quasi-)reflective scales but not for the pre-reflective scale. Degrees of freedom were adjusted accordingly.

The independent samples T-test indicated that teachers with a grade 1 certification considered themselves to be significantly more reflective than grade 2 certified teachers. They scored higher on the reflective ($t(105.43) = -4.013, p < .01$) and quasi-reflective scale ($t(107.54) = -4.155, p < .01$) and lower on the pre-reflective scale ($t(107.8) = 2.61, p = .01$). Equally, teachers that mainly teach in the higher levels (havo/vwo), considered themselves to be more reflective than teachers teaching in the lower levels ((v)mbo), scoring higher on the reflective ($t(50.83) = -5.15, p < 0.01$) and quasi-reflective scale ($t(51.18) = -4.96, p < 0.01$), and lower on the pre-reflective scale ($t(108) = -1.59, p = 0.12$), although the latter showed no statistical significance. No significant relationship was found between teaching experience and reflective thinking.

2.3.2 Questionnaire: Teacher beliefs regarding conceptual knowledge

In this section, teachers were asked to indicate on a 5-point scale how familiar they were with the linguistic concepts from Van Rijt and Coppen (2017). The scale ranged from 1 ('I have no idea what this concept entails') to 5 ('I am able to effortlessly explain this concept to others').

In Figure 1, the means and standard deviations of the familiarity with these concepts is given. The concepts are ranked according to their average score. We considered linguistic concepts relatively well-known if they had a mean score of >3.5 . This applied

to *agreement*, *word order*, *case*, *syntactic functions*, and *semantic roles*. If concepts scored $M < 2.5$, we considered them relatively unknown. This was the case for *complementation/modification*, *valency*, *recursion*, *grammaticalization*, *locality*, *compositionality*, *definiteness*, *aspect/Aktionsart* and *animacy*.

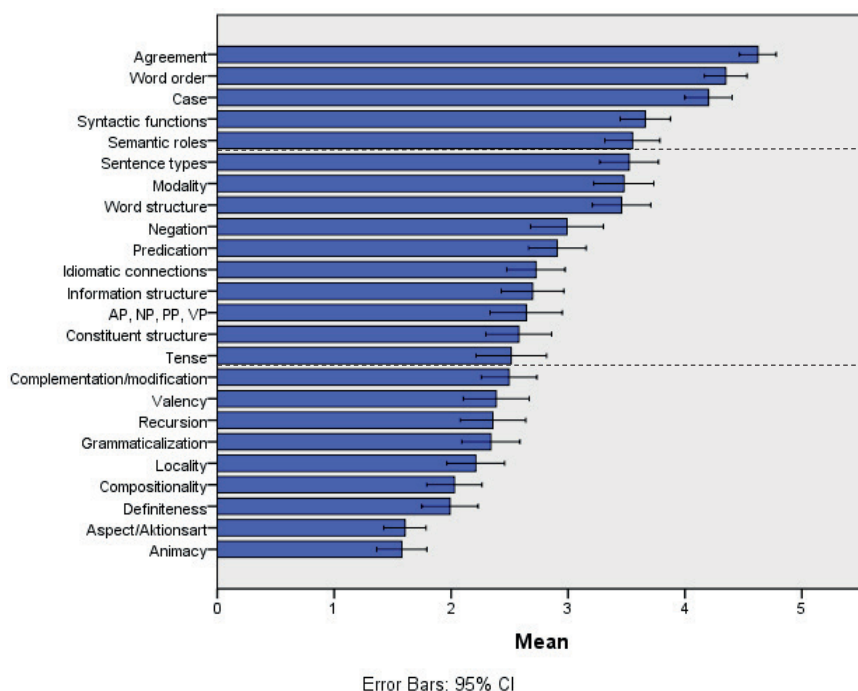


Figure 1 Teachers' familiarity with linguistic concepts

Note. This Figure shows Means and standard deviations (error bars) for each concept ($N = 109$). Dashed lines form the boundaries between well-known, medium known and poorly known concepts.

An independent samples T-test indicated that on average, teachers with a grade 1 certification ($M = 3.12$) considered themselves significantly more familiar with linguistic concepts than grade 2 certified teachers ($M = 2.7$) ($t(107) = -2.631$, $p = .01$). Similar results were found for the difference in teaching level: on average, teachers teaching in the higher levels (havo/vwo) reported more conceptual knowledge ($M = 3.01$) than teachers teaching in the lower levels ((v)mbo) ($M = 2.61$): ($t(107) = -2.423$, $p = .017$). Again, no effects were found for teaching experience. Additionally, Pearson's r indicated significant correlations between teachers' self-reported measure of reflectiveness and their self-reported conceptual knowledge: reflective teachers ($r = .455$, $p < .001$), quasi-reflective teachers ($r = .241$, $p = .012$). For pre-reflective teachers, no significant correlation could be found ($r = -.179$, $p = .063$).

Apart from asking teachers about their familiarity with linguistic concepts, we were also interested in whether teachers take concepts from the literature on grammar teaching into account when teaching grammar, namely *predication* and *valency*. To establish whether or not teachers might take these concepts into account, either implicitly or explicitly, we let teachers respond to statements that could be indicative of using either concept. In Table 2 and 3, we reported the statements that targeted either *predication* or *valency* and reported mean scores for each statement.

For all statements but the one marked with an asterisk (*), the higher the score, the more likely teachers are to use insights on *predication* in their grammar teaching in the relevant areas. For the statement marked with an asterisk, the opposite holds: neither from a linguistic, nor from a pedagogical perspective would it make sense to have a high score on this statement. Hence, if teachers use *predication* as a concept underpinning their grammar teaching, they would score low on this statement. Generally, the Table seems to indicate that teachers don't make much use of *predication* as an overarching linguistic concept in explaining primary and secondary predicates, adjectival phrases and predicate nominals.

A similar procedure was followed for the concept of *valency* (see Table 3). Again, the more teachers claim to adhere to these statements (except for the one marked with *), the greater the indication that their pedagogical choices are being influenced by their (implicit or explicit) understanding of *valency*.

Table 2. Statements that aimed to shed light on teachers' use (either implicitly or explicitly) of 'predication' as an overarching concept in explaining related terminology from traditional school grammar.

	Never (%)	Rarely (%)	Regularly (%)	Often (%)	Always (%)	Mean	SD
When covering secondary predication, I also discuss the subject complement.	61.8	13.6	13.6	6.4	4.5	1.78	1.18
I discuss verbal and nominal predicates simultaneously.	26.4	26.4	14.5	17.3	15.5	2.69	1.43
I point out the similarities between adjectival phrases and the verbal predicate*	70.9	18.2	10.9	0.0	0.0	1.40	0.68
I discuss secondary predicates and adjectival phrases jointly.	66.4	17.3	9.1	4.5	2.7	1.60	1.02

Table 3 Statements that aimed to shed light on teachers' use (either implicitly or explicitly) of 'valency' as an overarching concept in explaining related terminology from traditional school grammar.

	Never (%)	Rarely (%)	Regularly (%)	Often (%)	Always (%)	Mean	SD
The direct and indirect object are jointly discussed in my classroom.	8.2	15.5	19.1	40.9	16.4	3.42	1.18
The prepositional object ⁴ and the adverbial PP are discussed simultaneously in my classroom.	51.8	20.0	10.9	12.7	4.5	1.98	1.25
I show that the direct object and the verbal predicate form a whole.	40.9	26.4	12.7	14.5	5.5	2.17	1.26
I tell my students that adverbials are parts of speech that 'remain' after identifying all other parts of speech.*	16.4	20.9	29.1	20.9	12.7	2.93	1.26
I explain to my students what the difference in meaning is between direct and indirect objects.	6.4	6.4	24.5	26.4	36.4	3.80	1.19

The Table indicates that teachers don't make much use of *valency* as an overarching linguistic concept in explaining syntactic functions such as objects and the differences between objects (which are generally obligatory, because they are being 'summoned' by the verb) and adjuncts or adverbials (which are generally optional, since they are not enforced by the verb).⁵

^{4.} In Dutch, syntactic constructions with a 'voorzetselvoorwerp' (prepositional object) are characterized by the fact that these combine a verb with an unchangeable preposition, with a non-literal meaning (e.g. 'Ik wacht op jou' – 'I am waiting for you'). Prepositional objects are considered as complements of the verb (cf. Broekhuis, Corver & Vos, 2015) and can hence be described by using *valency*. Similar forms often appear with a literal meaning ('Ik wacht op het perron' – 'I am waiting on the platform'). In these cases, the PP 'op het perron' is not a complement of the verb, but instead, it is an adverbial (adjunct) indicating place. Hence, in spite of their resemblance in form, both constructions behave rather differently. Having insight into *valency* can help foster a better understanding of these constructions.

^{5.} The questionnaire also included a section asking participants to reflect on the difficulty of concepts from traditional grammar for their (v)mbo and havo/vwo students. Participants had to score these concepts on a 5-point scale from 'very easy' to 'very difficult'. The results of this section were not reported in the published article on which this chapter is based. As these results do not relate to the topic of this dissertation, they are also not reported in this chapter. The results can be found in Van Rijjt (2020, p. 191).

2.3.3 Questionnaire: Teachers’ contentment with their current textbook

Section 3 of the questionnaire was aimed at identifying teachers’ contentment with their current textbook ($N = 96$). In general, teachers are moderately satisfied with the textbooks they work with ($M = 3.11$, $SD = 0.93$, measured on a 5-point scale). Similar pictures arise from questions about textbooks’ theoretical explanations of grammatical subjects ($M = 3.04$, $SD = 0.95$), the quality of assignments and exercises in grammar sections ($M = 3.07$, $SD = 0.93$) and the order in which grammatical topics are covered ($M = 2.95$, $SD = 0.97$). In an open question, teachers could elucidate their views. 43 teachers commented on the scores they had given, which we divided into six categories. In Table 4, the teachers’ main comments are listed.

Table 4. Teachers’ main comments on the current textbook for grammar they are using.

Category	N of mentions	Illustrative quote
The textbook only uses simplifications and meaningless rules-of-thumb	7	‘[The textbook is] solely focused on how it should be done [the prescriptive norm], rather than on how language works.’
The order in which grammatical subjects are covered is strange / a clear build-up is missing	7	‘The textbook is inconsistent in teaching the right order of grammatical terminology over the various years.’
Explanation and/or exercises are limited	6	‘More exercises are required’ / ‘too little is expected from the students’
Grammar in the textbook is too hard for students	4	‘For many students, grammar is too hard [...] The pace is too high for those students who have had limited grammar education in primary school.’
Certain aspects of grammar are unnecessary	4	‘In my opinion, certain parts of speech are unnecessary to teach, such as the secondary predicate.’
There is too little room for students’ own experiences and intuitions / too little self-discovery	3	‘There is little room for own experiences.’

In general, teachers’ comments are aimed at identifying deficits in the textbook, for example the lack of linguistic insights that these apparently convey, or limitations in pedagogy (strange build-up, limited theory or exercises). Other remarks mostly reflect their personal beliefs about which conceptual knowledge should be covered: some teachers express the desire to downplay explicit grammar teaching, whereas others believe that students should be capable of handling much more or at least more difficult grammar.

2.3.4 Reflective thinking and conceptual knowledge in contemporary textbooks

Contemporary textbooks were analysed to explore the extent to which they offer opportunities for teachers to work on reflective thinking and conceptual knowledge in grammar classrooms. In general, almost all assignments in the grammar sections are lower-order thinking assignments (see Figure 2). There is no difference between the kinds of textbooks nor between the educational level with respect to the distribution of lower-order and higher-order thinking assignments. Most assignments appeal to lower-order thinking at the level of *applying* (in Bloom’s (1956) terminology).

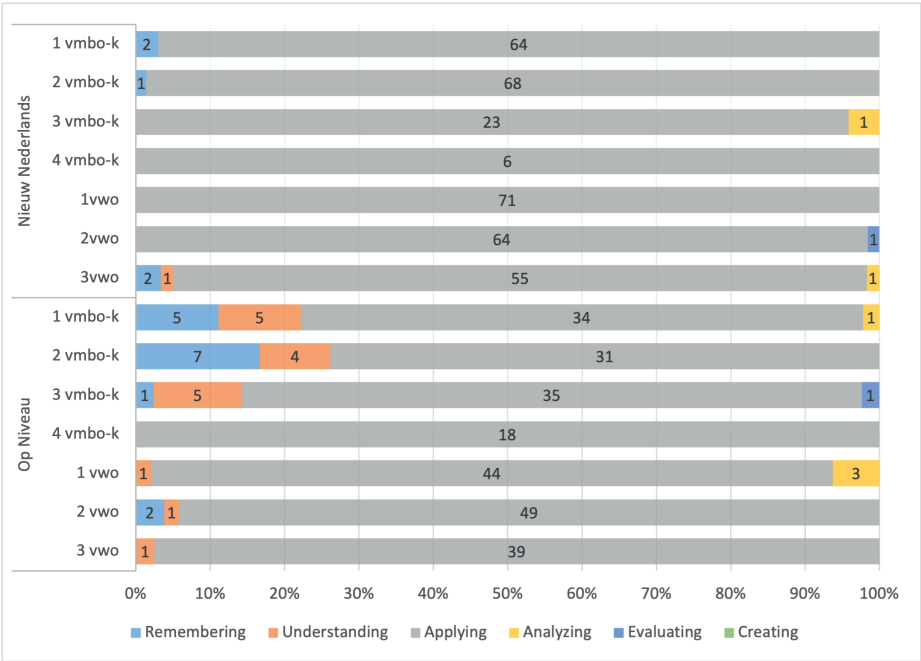


Figure 2. Lower-order thinking and higher-order thinking assignments in the grammar sections of the textbooks Nieuw Nederlands and Op Niveau, vmbo-kader and vwo.

Note. The numbers in the Table indicate the number of exercises in the different categories of Bloom’s (1956) taxonomy. In total, there were 601 remembering, 19 understanding, 601 applying, 6 analysis, 2 evaluating exercises and none creating exercises.

A closer look at the different types of assignments shows that remembering assignments are about remembering rules-of-thumb for finding parts of speech or about giving an example of a particular kind of part of speech. For instance, ‘Name three verbs’ (our translation from Dutch, *Nieuw Nederlands*, 1vmbo-kgt, p. 105) or ‘What is the question with which you can find the subject of a sentence?’ (*Op Niveau*, 1 vmbo-kgt, p. 167). An example of an assignment that appeals to the

level of *understanding*, is: ‘Is the italic part of speech in the next sentence an object? ‘According to the policeman, the driver drove 90 *kilometers per hour*’. Explain your answer’ ((Op Niveau, 1 havo/vwo, p. 226). A typical *applying* assignment is about finding a particular part of speech in sentences. For instance, ‘Name the finite verb, subject, and verbal predicate from each sentence.’ (Nieuw Nederlands, 1 vwo, p. 109). Close to 94% of all assignments fits into this category. An example of an assignment in which students have to *analyse* language is: ‘Examine whether or not contractions occur in German, English and French on the word level, phrase level and sentence level and backwards and forwards.’ (Nieuw Nederlands, 3 vwo, p. 205). In the following example students have to *evaluate* a linguistic problem. ‘Your teacher will present to you a mystery, a grammatical problem. The mystery is about the question: is the word ‘well’ in the sentence ‘This writer writes very well’ an adverb or an adjective?’ Discuss this problem in pairs. Your teacher will give you a couple of statements about this sentence. Try to answer the question above with the help of these statements.’⁶ (Nieuw Nederlands, 2 vwo, p. 241). We refer to such an assignment as an *evaluating* assignment.

In the three types of lower-order thinking assignments, we have not found any starting point for reflective thinking. The few assignments concerning higher-order thinking allow students to take a more reflective stance towards language or grammar. However, the assignments still suggests the existence of a clear, well-formed answer, which is typical for the lower levels of reflective thinking. Strikingly, not one assignment could be placed under Bloom’s ‘create’-category⁷.

In the textbook analysis, we also took inventory of implicit or explicit concept use in grammatical theory and exercises. In most cases, linguistic concepts that were being addressed were derived from traditional grammar, which is not strange, considering that modern linguistic theory is built upon traditional grammar (cf. Allan, 2007). In all textbooks, we found instances of all sorts of traditional parts of speech (e.g. subject, personal pronoun) and other concepts that are strongly affiliated with traditional grammar, such as *voice* and *sentence types* (e.g. *subordinate clauses*).

Concepts that are more associated with modern linguistic theory, occur much less. In one school book, we encountered *constituent structure* (including *modification* of the

⁶ In Dutch, the adverb and adjective share the same form in this particular case. Therefore, the difference between an adverb and an adjective can only be explained by using contextual cues and by conducting linguistic manipulations that can only apply to either adjectives or adverbs.

⁷ It has to be noted that some methods employ assignments such as ‘Form a sentence according to the following pattern: subject – finite verb – object.’ Even though in a literal sense, this requires students to ‘create’ a sentence, we argued that in fact these assignments were variants of typical sentence analysis. Hence, we analysed exercises of this type as belonging to ‘apply’.

core of a constituent) and *main syntactic categories* (AP, NP, PP, VP). These concepts were explicitly introduced and discussed, and do not belong to the domain of traditional grammar. However, no other concepts from modern linguistic theory found their way into the analysed textbooks.

Some textbooks conveyed implicit instances of conceptual knowledge from modern linguistics. We found three paragraphs (in two different books) that seemed to hint towards *predication*, only one of which was clearly used to connect the relevant parts of speech associated with the concept (primary and secondary predicates, adjectival phrases and predicate nominals). However, no explicit mention of the concept occurred. We also found two paragraphs and one exercise that appealed to the concept of *valency*, prompting students to think about obligatory elements (*complementation*).

2.4 Discussion

Since grammar has internationally resurfaced in language policy and in academic research over the last decade (cf. Locke, 2010, Watson & Newman, 2017, p. 382), teachers and policy makers are once again confronted with the question whether explicit grammar teaching should play a role in L1 education. In several publications on the topic, emphasis is given to the added value of implementing insights from modern linguistic theory (e.g. Van Rijt & Coppen, 2017) and a reflective attitude that enables students to achieve a more conscious level of understanding and using language (e.g. Ribas et al., 2014). This study is the first to dive into Dutch teachers' beliefs regarding modern linguistic concepts and reflective thinking (in the sense of King & Kitchener, 1994) in the grammar classroom.

It is important to note that this study aimed to shed light on beliefs, rather than on existing classroom practice. Therefore, the current study, although providing valuable data on declared practice, cannot give unequivocal insights into what actually happens in secondary schools. For instance, the majority of teachers claim to use linguistic sources in their grammar classroom, but it cannot be concluded that they actually do this. Gaining more insights into actual classroom practices regarding conceptual knowledge and reflective thinking is therefore an important next step.

Measuring beliefs is a complicated matter. Even though questionnaires are a frequently used method to gain insights into teacher beliefs (cf. method section), it has a few inherent downsides, which may have influenced the outcomes. For example, since our questionnaire was open to participation, it may have been

the case that most teachers that have participated had strong views on grammar teaching. Therefore, the questionnaire may have targeted teachers with beliefs that are somewhat different (e.g. more reflective) than other teachers' beliefs.

Additionally, even though we had a very decent number of participants ($N = 110$), not all groups of teachers were equally represented. Therefore, some caution should be exercised when trying to generalise these results, although the study shows several very interesting tendencies.

Lastly, using a questionnaire to measure reported linguistic knowledge may not seem like the most obvious choice, even though there are several studies that have done so (e.g. Berry, 1997). However, bear in mind that this study aimed to capture teachers' self-estimated linguistic knowledge rather than their actual knowledge. Taking into account that most people tend to overestimate their knowledge when filling in a questionnaire, the actual level of their conceptual knowledge is likely to be even lower. These results can therefore give an indication of the actual level of conceptual knowledge.

Our study indicates that most Dutch teachers seem to hold views on grammar teaching that are either quasi-reflective or reflective in terms of King and Kitchener's (1994) Reflective Judgement Theory. The minority of teachers can be considered mostly pre-reflective. Even though a quarter of the participating teachers could not be clearly identified as belonging to a single category, we argue that these teachers are most likely quasi-reflective thinkers. After all, teachers reasoning in a quasi-reflective manner know that knowledge is uncertain and they therefore consider several viewpoints without comfortably making a well-informed decision in the given context (King & Kitchener, 2004, pp. 6-9). This would explain why some teachers cannot be indistinctly classified. It suggests that the total number of quasi-reflective reasoners is 44 (40%), making the vast majority of teachers (quasi)-reflective.

Even though some teachers may have judged themselves to be more reflective compared to how reflective they actually are in classroom practice, teachers seem to be open to a large role for reflective thinking in grammar teaching. This is for instance expressed by their self-reported implementation of linguistic sources in the classroom. As argued before, such sources have the potential to stimulate students' reflectivity (cf. Wijnands, 2016), even though more research on this matter is still highly desirable. Regarding reflective thinking, teachers' views seem to align with the ideals that are promoted in the educational literature on grammar teaching (cf. Ribas et al., 2014), which makes it feasible to pedagogically enrich grammar education in

that way. Although most teachers seem to be open to reflective thinking in grammar teaching, not all teachers will find it equally useful, since there are significant differences between them: teachers with a grade 1 certification consider themselves to be far more reflective than their grade 2 certified colleagues. The same goes for teaching level: teachers teaching at the highest levels (havo/vwo), are generally more reflective in their thinking than teachers from the lower levels (vmbo). Teachers from lower levels of education also show less willingness to implement reflective thinking into their grammar teaching. This could indicate that teachers believe that reflective thinking in grammar teaching is more important for students with greater cognitive capacity.

Apart from their mostly positive attitudes towards stimulating reflective judgement in grammar teaching, there are also indications that many teachers are open to making use of conceptual knowledge from modern linguistic theory: frequently mentioned complaints about textbooks are that these oversimplify grammar and that they expect too little from students (although a smaller group of teachers from our data set believes there is too much grammar in the textbooks). Conceptual enrichment is likely to counter those complaints, even those from teachers who consider grammar to be too hard for their students. After all, as some authors argue, grammar is made needlessly difficult because no real insights are aimed at, but instead, superficial tricks and rules-of-thumb that are inadequate for grammatical analysis dominate (Berry, 2015; Coppen, 2009; Van Rijt & Coppen, 2017). This makes parsing sentences a meaningless task. Conceptual enrichment could be used to reduce the rules-of-thumb that lead to unnecessary difficulty.

However, teachers' self-reported knowledge on the main concepts from modern linguistics is no reason for optimism: they only claim to know a small number of linguistic concepts fairly well, namely *agreement*, *word order*, *case* and *syntactic functions*. These all belong to traditional grammar and are less associated with modern linguistic theory. Teachers also claim to know *semantic roles* (e.g. *agent*, *patient*) fairly well, which is the only concept in that category from modern linguistics. Even if the highest scoring concepts from the middle group are taken into account (*sentence types*, *modality* and *word structure*), the overall picture remains the same, since these concepts too are commonalities in traditional grammar.

These results align with previous studies into teachers' and student teachers' metalinguistic knowledge, which is generally reported to be rather low (e.g. Alderson & Hudson, 2013; Borg, 2003; Giovanelli, 2015, 2016; Graus & Coppen, 2015; Jones & Chen, 2012; Myhill, 2000; Sangster et al., 2013). Moreover, teachers

tend to overestimate their linguistic knowledge (e.g. Sangster et al., 2013), which further strengthens the idea that their linguistic knowledge is not up-to-date. This does not merely seem to be a matter of them not knowing the proper terminology, as was suggested by teachers' replies to statements that aimed to measure their understanding of *predication* and *valency*. If teachers didn't know the appropriate term, but completely understood the concept itself, they would have scored much higher on the related statements.

Therefore, before grammar education can be conceptually enriched, it seems advisable that teachers are trained in crucial concepts from the syntax-semantics interface, so that they can (more) effectively convey this knowledge to their students. A lack of conceptual knowledge leads to grammatical misconceptions and poor pedagogical choices, as Myhill (2000, 2003) has demonstrated, for example for grammatical instruction on the passive construction. Luckily, Alderson and Hudson (2013) have shown that undergraduate students' metalinguistic knowledge can be quickly enhanced. Short trainings seem suitable to substantially upgrade teachers' linguistic knowledge. Finally, educational linguists have an important task to further investigate the relationship between linguistic concepts and traditional grammatical terminology.

Strikingly, according to our data, the variable of *teaching experience* plays no significant role in either linguistic conceptual knowledge or in reflective thinking. This suggests a strong degree of fossilization of teachers' initial beliefs, which confirms findings of earlier studies (e.g. Borg, 2011; Phipps & Borg, 2009, p. 381) stating that teacher beliefs are strongly influenced by teachers' own experiences as learners. This raises important questions about how teacher beliefs can best be influenced to pedagogically enrich their practice. Research into this theme is therefore much desired. Another important issue pertains to methodology: how can teacher beliefs best be measured? Although questionnaires have been called the best method (e.g. by Maggioni, 2004), they come with inherent downsides, that cannot simply be canceled out by complementing them with interviews due to low correlations between them (Maggioni 2004, p. 179).

Teachers are only moderately satisfied with the textbooks they are using, and our analysis of the two most commonly used textbooks has revealed that these textbooks don't align with the suggestions from the literature on grammar teaching at all (cf. introduction section). First and foremost, the vast majority of exercises can be characterised as involving lower-order thinking, offering little possibilities for developing a reflective attitude. This is also echoed by some of the teachers' complaints about the textbooks they use, when stating that 'too little is expected from

students'. This is a missed chance, since several authors argue that reflective thinking is crucial in developing a deeper understanding of language (Fontich, 2016; Ribas et al., 2014). Moreover, textbooks only scarcely implement insights from modern linguistic theory, and if they do so, this is mostly done in an implicit manner. This too is a missed chance, since a good understanding of explicit linguistic concepts can help further students' insights into the workings and structure of language, both in and out of (written) context (Chen & Myhill, 2016; Myhill et al., 2016; Ribas et al., 2014; Watson & Newman, 2017). Explicit linguistic terminology might also foster students' reflective capacity, since adequate reflection involves a decent knowledge. This especially holds for reflective thinkers in the King and Kitchener (1994) model, since these thinkers should be capable of making well-informed decisions that are dependent upon the given context. Well-informed decisions can only be made if the learner can adequately grasp the subject matter, e.g. a grammatical phenomenon.

The relationship between teachers' beliefs and their classroom practice on the one hand and the arguments to implement knowledge from the related academic discipline on the other is crucial for a successful curriculum development. Van der Aalsvoort and Kroon (2015) and Van der Aalsvoort (2016) have convincingly shown that linguistics did not become a part of the official Dutch curriculum because of the way teachers and policy makers perceived the relationship between the school subject of Dutch Language and Literature and the related academic discipline. Van der Aalsvoort and Kroon (2015, p. 10) point out the importance of *cooperation* (as opposed to *transmission* or *non-cooperation*) between school subjects and academia, in which teachers and academic linguists jointly discuss the best way to combine their respective expertise, in an effort to develop the best grammar pedagogy. This is also a way out of the traditional 'grammar debate', shifting the discussion from the question whether grammar should be taught at all to how it should be done. A good example of such a state of cooperation is the Professional Learning Community (cf. Schaap & De Bruijn, 2018), where teachers and scientists created teaching materials for grammar education together in a Professional Learning Community (cf. De Bruijn et al., 2016 for a Dutch grammar teaching example).

In summary, most Dutch language teachers appear to hold positive views towards reflective thinking in the grammar classroom, which echoes important ideologies in grammar teaching and in related research. The implementation of linguistic knowledge can also be seen as a way to strengthen the grammar curriculum and to enforce deeper grammatical insights (cf. Hudson, 2004; Hudson & Walmsley, 2005; Van Rijt & Coppen, 2017; Van Rijt et al., 2018). However, since teachers report a fairly low knowledge about the concepts from modern linguistics, a lot of work is still to

be done before these insights can be effectively conveyed to students. The only way that ideological views on how to teach grammar can be effectively implemented in grammar classrooms, is to align *teacher beliefs* with these ideologies, preferably through *cooperation* between teachers and linguists.

The teachers we questioned seem to have beliefs on grammar teaching that indeed do match the ideologies on reflective thinking and conceptual knowledge fairly well, but the textbooks they make use of, do not offer many opportunities to exercise these ideologies. This frustrates teachers' needs and desires, and limits what they can achieve in their daily practice. Teachers wanting to escape this friction should be encouraged, and more importantly facilitated, to make use of modern linguistic concepts in their teaching, and address reflective thinking more prominently. This calls for more research on the way this can be done.

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Analysed textbooks

Kraaijeveld, R. et al. (2007). *Op Niveau*, 1 vmbo-kgt. Amersfoort: Thieme Meulenhoff.

Kraaijeveld, R. et al. (2008). *Op Niveau*, 2 vmbo-bk. Amersfoort: Thieme Meulenhoff.

Kraaijeveld, R. et al. (2009). *Op Niveau*, 3 vmbo-k. Amersfoort: Thieme Meulenhoff.

Kraaijeveld, R. et al. (2010). *Op Niveau*, 4 vmbo-k. Amersfoort: Thieme Meulenhoff.

Kraaijeveld, R. et al. (2007). *Op Niveau*, 1 havo/vwo. Amersfoort: Thieme Meulenhoff.

Kraaijeveld, R. et al. (2008). *Op Niveau*, 2 havo/vwo. Amersfoort: Thieme Meulenhoff.

Kraaijeveld, R. et al. (2009). *Op Niveau*, 3 vwo. Amersfoort: Thieme Meulenhoff.

Wijnands, A. et al. (2011). *Nieuw Nederlands*, 1 vmbo kgt. Groningen: Noordhoff Uitgevers.

Wijnands, A. et al. (2012). *Nieuw Nederlands*, 2 vmbo kgt. Groningen: Noordhoff Uitgevers.

Wijnands, A. et al. (2013). *Nieuw Nederlands*, 3 vmbo (basis)kader. Groningen: Noordhoff Uitgevers.

Wijnands, A. et al. (2014). *Nieuw Nederlands*, 4 vmbo (basis)kader. Groningen: Noordhoff Uitgevers.

Steenbergen, W. et al. (2011). *Nieuw Nederlands*, 1 vwo. Groningen: Noordhoff Uitgevers.

Steenbergen, W. et al. (2012). *Nieuw Nederlands*, 2 vwo. Groningen: Noordhoff Uitgevers.

Steenbergen, W. et al. (2014). *Nieuw Nederlands*, 3 vwo. Groningen: Noordhoff Uitgevers.



Chapter 3

Measuring epistemic beliefs about grammar

Corresponding article:

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Abstract

In current educational reform much attention is paid to the development of awareness, reflective thinking and higher-order thinking. In language education, the importance of reflectivity for stimulating linguistic awareness and higher-order thinking has been emphasised. Crucial for reflective thinking are the underlying assumptions individuals have regarding the nature of knowledge and knowing, so-called epistemic beliefs. Measuring these beliefs is problematic in the domain of language education, where little is known about students' epistemic beliefs about grammar. This study aims to develop an instrument for measuring students' epistemic beliefs in the L1 grammar domain. We therefore transposed a questionnaire for measuring beliefs about history into the domain of grammar. Seven linguistic experts and 300 pre-university students from the Netherlands and Belgium completed this questionnaire about grammar. Exploratory factor analysis extracted two factors, which we argue reflect convergent and divergent thinking. This study shows that students' scores on convergent thinking are higher than the experts' scores and that students' scores on divergent thinking are lower than the experts' scores. The results also show that students' scores on epistemic beliefs on divergent thinking are higher than their scores on epistemic beliefs on convergent thinking. Possible explanations for these observations are discussed.

3.1 Introduction

In recent decades, much research has been undertaken on the development of epistemic beliefs in several domains, such as history (see Maggioni, 2010; Maggioni et al., 2004; Maggioni et al., 2009; Stoel, 2017; Stoel et al., 2017; VanSledright & Maggioni, 2016), mathematics (see Muis, 2004; Depaepe et al., 2016), and science (see, Elbe et al., 2016). Epistemic beliefs, which are commonly described as beliefs about the nature of knowledge and the nature of knowing are also important in research on learning in general (Hofer, 2002, Hofer & Pintrich, 1997; Muis, 2004, 2007, Muis et al., 2006; Van Rijt et al., 2019)

Part of this research is devoted to *measuring* epistemic beliefs. Various methods are used to this end (Mason, 2016), ranging from qualitative interviews (e.g., King & Kitchener, 1994), to paper-and-pencil instruments (e.g., Kuhn et al., 2000) and questionnaires (e.g., Maggioni, et al., 2004; Stoel et al., 2017, Van Rijt, Wijnands, et al., 2019).

Stoel et al. (2017) developed a questionnaire for measuring epistemic beliefs about history of students in the highest track of secondary education, based on Maggioni's (2010) 'Beliefs about History Questionnaire' (BHQ). In this study, we adopt the questionnaire by Stoel et al. (2017) and transpose it to another learning domain, namely the linguistic education domain. In doing this, we attempt to measure students' epistemic beliefs on knowledge of language and knowing language, with an emphasis on the grammar domain (in the sense of the linguistic description of language). The research questions for this study are:

1. Can Stoel et al.'s questionnaire be transposed to the linguistics education domain successfully?
 - a. To what extent are the results on the questionnaire by Stoel et al. (2017) for measuring epistemic beliefs in history comparable to the results of the questionnaire for measuring epistemic beliefs in grammar?
 - b. Does the questionnaire measure an expected valid developmental distinction in epistemic beliefs in grammar?
2. What are pre-university students' epistemic beliefs on language compared to experts' beliefs?

3.2 Measuring epistemic beliefs in the linguistic educational domain

3.2.1 Epistemic beliefs and reflective thinking

In research on epistemic beliefs, the powerful relationship between epistemic beliefs and reflective thinking is often stressed (Hofer, 2002; Hofer & Pintrich, 1997; King & Kitchener, 1994, 2002, 2004; Maggioni 2010; Muis, 2007). This relationship works two ways. On the one hand, epistemic beliefs influence the way reflective thinking develops. On the other hand, reflective thinking is the driving force for epistemic belief development (King & Kitchener, 1994, 2004).

The Reflective Judgment Model by King and Kitchener (1994, 2002, 2004) aims to describe the development of reflective thinking and reasoning in a multi-level model, using core elements of epistemic beliefs: the nature of knowledge (is knowledge perceived as an absolute, best or relative truth?) and the justification of knowledge (is knowledge justified by authorities, logic or context?). Three main levels are distinguished: (1) a *pre-reflective level*, characterised by an epistemic belief that knowledge is absolute and justified by authority and perception; (2) a *quasi-reflective level*, where the epistemic belief is, that knowledge is quasi-absolute (idiosyncratic, but solvable) and (also) justified by argumentation, and (3) a *reflective level*, where knowledge is seen as a relative truth, the best choice in a given context, and justified by contextual considerations. For reflective thinking this means that pre-reflective thinkers typically will not be able to evaluate from multiple perspectives, and quasi-reflective thinkers will have troubles evaluating conflicting evidence.

Ill-structured problems and divergent information trigger epistemic doubt, which is necessary for development (Bendixen & Rule, 2004; Kienhues et al., 2016; King & Kitchener, 1994). Since no clear-cut solutions to these problems are given, students are bound to challenge their epistemic beliefs, and they are likely to change their usual ways of thinking, and adapt their beliefs.

In current educational reform, concepts like awareness, reflective thinking and higher-order thinking skills are gaining momentum in general. For the language education domain, this is asserted in a broad context by Boivin et al. (2018), and it is further developed for specific language domains: for the Anglophone situation: ACARA (2009), Denham (2020), Denham & Lobeck (2010), Derewianka (2012), Exley & Mills (2012), Trousdale (2010), for the Francophone situation: Boivin (2018), for the Hispanic situation: Camps & Fontich (2019), Fontich & García-Folgado (2018), for the Dutch situation: Curriculum.nu (2019); Meesterschapsteam Nederlands (2018), Van

den Broek (2020), Van Rijt (2020), VVKSO (2014). Therefore, the relationship between reflective thinking and epistemic beliefs is becoming more and more important. From current research it seems that high school students generally exhibit pre-reflective thinking skills (see King & Kitchener, 2004), whereas most college students show quasi-reflective thinking skills (King, 2009; King & Kitchener, 2002, Mierewald et al., 2017). In order to develop reflective thinking for pre-university school students, attention should be paid to the development of epistemic beliefs. Measuring these beliefs is a prerequisite for this. To our knowledge, no research has been conducted on measuring epistemic beliefs about grammar.

3.2.2 Measuring epistemic beliefs about grammar

Stoel et al.'s (2017) questionnaire on historical epistemic beliefs seems to offer a good basis for constructing a questionnaire for assessing epistemic beliefs for the domain of grammar. According to Muis et al. (2006), domains are comparable if they are alike in the nature of the problems involved (ill-structured or well-structured), the body of the theory (paradigmatic/hard or non-paradigmatic/soft), and the way the theory progresses (theoretic development/pure or practical/applied). Muis et al. (2006) characterise the history domain as ill-structured, soft and pure. The grammar domain can be characterised in the same way: although decontextualised grammar (parsing) exercises suggest that grammar problems are well-structured and that reasoning is paradigmatic/hard, the problem of grammatical choice is an ill-structured problem, and even for parsing exercises, research into expert linguistic analysis (Dielemans & Coppen, 2020) shows that linguistic experts use both convergent and divergent reasoning to solve analytical problems. This makes linguistic reasoning about grammar also non-paradigmatic/soft. Finally, prescriptive grammar knowledge may appear to be governed by practical considerations, but expert grammar knowledge is all about theoretical development, just as in the history domain.

Stoel et al.'s questionnaire is also a good basis for our purposes, because it targets students in the highest track of secondary education, which is also our focus, and it is based on theories about epistemic beliefs in relation to reflective thinking.

3.3 Method

3.3.1 Participants

For this study we invited seven linguistic experts to fill in the questionnaire, firstly in order to replicate Stoel et al.'s (2017) study, and secondly to be able to compare secondary school student scores with accomplished linguist scores. These linguistic

experts were full professors of Dutch or English linguistics or Second Language Acquisition. Two professors were emeritus. The participating professors gave active consent to use their data anonymously in the research.

Five Dutch teachers from four different secondary schools and six Belgian teachers from three different secondary schools voluntarily participated in this study. All teachers were grade 1 certificated, which means that they can teach in all levels of secondary education. Eight teachers were university graduates, three teachers graduated from universities of applied sciences. Their experience as teachers in Dutch language and literature ranged from six to thirty years. The study of this article is part of a larger study on the development of reflective thinking about language issues (see also Coppen et al., 2019; Wijnands et al., 2021). In this larger study (see Chapter 5 and 6), three Belgian teachers (from two different schools) participated in a Professional Learning Community (PLC) and three Dutch teachers (from three different schools) participated in another PLC. The remaining five teachers were approached separately by the first author to participate in this part of the study. All teachers received information about the objectives of this study.

A total of 302 pre-university students participated in this study. The students were asked to sign a consent form in which it was stated that their data would be used anonymously for scientific research. In total, 300 students signed this consent. In case of students younger than 16 years, their parents signed the consent. Two Belgian students withheld their consent and were consequently left out the data collection. The 300 participating students came from Dutch-speaking areas: the Netherlands and Belgium (Flanders), see Table 1.

In the Dutch curriculum, grammar is taught in the 7th to 9th grade (12-15 years old). In Belgium, students receive grammar education from the 7th to 12th grade (12-18 years old). In both countries grammar teaching is mostly traditional, focusing on parsing sentences and labelling parts of speech, using a traditional Latin-based body of grammar knowledge (cf. Van Rijt, 2020).

The study was approved by the ethical committee of the Radboud university in Nijmegen, under reference number 18U.019822.

Table 1. Participants

	Belgian students	Dutch students	Dutch students	Total
	11 th grade, 16 – 17 years	11 th grade, 16 – 17 years	12 th grade, 17 – 18 years	
Test moment 1 (paper-pencil)	50	41	53	144
Test moment 2 (Qualtrics)	78	78	-	156
Total	128	119	53	300

3.3.2 Procedure

The experts completed the questionnaire in *Qualtrics* without a time limitation.

For the students, there were two test moments (see Table 1). In the first test moment, 144 students filled in the questionnaire with paper and pencil. In the second test moment 156 students completed the questionnaire in *Qualtrics*. The choice of two ways of testing arose from the preference of the teachers. In the first testing moment the preference was for paper and pencil, in the second testing moment for *Qualtrics*. In both subgroups the teachers of the students were asked to follow a protocol in which their students were given about 10 minutes for completing the questionnaire.

An independent T-test revealed no significant difference between the test conditions (paper-and-pencil vs *Qualtrics*). This t-test was computed from the 11th grade student results only, because for the 12th graders, only one condition was applied. Because the results from both test conditions did not differ, we combined them in the remaining analyses. There is also evidence in the literature to suggest that migration from paper-and-pencil to electronic surveys does not have a substantial effect on the outcomes of the measurement (Barzilai & Weinstock, 2015; Roberts, 2007).

3.3.3 Development of the questionnaire

Our starting-point for developing the questionnaire for the domain of grammar was the concept questionnaire consisting of 26 items developed by Stoel et al. (2017, p. 126). The first author, a teacher educator of the Dutch language, and the third author of this paper, a full-professor of linguistics, developed a first transposition from the history domain to the linguistic domain. In this transposition, several standard rephrasings were applied. For example, a phrase such as ‘to write adequately about history’ was converted to ‘analyse words and sentences correctly’. We converted ‘historical events’ to ‘language intuitions’, since according to Chomskyan linguistic theory (Chomsky, 1965) language utterances can only be considered as indirect evidence of the language that resides in the human brain; language intuitions,

as more direct evidence, come closer to the notion of 'linguistic facts'. Therefore, language intuitions are comparable to historical facts. They have to be explained by theory (for a full overview of the conversions, see Appendix B). Three items (1, 9 and 10) were completely reformulated, while preserving the essential epistemic content. This first transposition was validated by two Flemish teachers to prevent a language variant effect (the Belgian language and context differs from the Dutch variants, and both authors were from the Netherlands). As a result, some words and formulations were adapted (for instance, the word *ontleden* 'parsing' is seldom used in Belgium, so the more general term *analyseren* 'analyse' was chosen).

In order to discover deficiencies in the formulation of the test items, we piloted the questionnaire with two students. One student was from pre-university education (12th grade) and the other student was a third year bachelor university student. They scored the items in a thinking aloud protocol. On basis of the transcripts of these sessions some items were improved in the formulation (see Appendix C for the final questionnaire). In line with Stoel (2017) and Maggioni et al. (2009) the items had to be scored on a 6-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*).

Finally, the authors of this paper individually categorised the 26 items on language into pre-reflective, quasi-reflective and reflective items. Fleiss' kappa showed that there was an initial moderate agreement between the authors' judgements, $\kappa=.531$ (95% CI, .373 to .690), $p < .001$. Disagreement only occurred between adjacent scales (e.g., between the pre-reflective and quasi-reflective scales) and not between the pre-reflective and reflective scales. Because these three scales represent a developing continuum, disagreement might be considered as borderline cases of a particular scale. The disagreed items were subsequently resolved through discussion, resulting in a full agreement on the classification.

3.3.4 Data analysis

We analysed the data in different steps. The first step concerned the experts' scores in order to find out whether the adjusted items test the intended reflective attitudes. We followed Maggioni et al. (2009) and Stoel et al. (2017) in not applying extensive statistical analyses on the scores of the seven experts, because of the relatively small number. We calculated the average scores on the three scales we conceived beforehand. In order to assess the reliability of these scales we calculated Cronbach's alpha for experts' scores.

The second step concerned the analysis of the students' scores on the questionnaire. We conducted an exploratory factor analysis (Principal Axis Factoring) with Varimax

rotation and Kaiser Normalization. Because we realise that our data are nested since seven schools were involved, we also conducted a Multilevel Confirmatory Factor Analysis (MCFA) using R (Huang, 2017). This MCFA did not result in a positive outcome, which is probably due to the small size of the nested structure. In order to find out whether the factors found in the exploratory factor analysis were valid for the different schools, we conducted factor analyses (Principal Axis Factoring) with Varimax rotation separately for those schools. The results of these separate analyses were to a large extent comparable with the integral analysis. From this we conclude that the integral analysis has sufficient validity.

The third step in our data analysis concerned the comparison (using independent t-tests) of the mean scores for the Belgian and Dutch students, since both the content and the educational practice in the curricula differ (Bonset & Hoogeveen, 2010; Knop & Van Laere, 2017; VVKSO, 2014).

In the third step we also investigated the differences between the scoring by students from the 11th grade and 12th grade, because it seems likely that reflectivity develops over time. In the final step we compared the mean scores of the experts ($N = 7$) with the mean scores of the students in order to find out to what extent experts' scores differed from students' scores.

3.4 Results

3.4.1 Experts' scores

In order to validate the stability of the adjusted items of the questionnaire, we asked linguistic experts to score the items. Because of their scientific attitude towards language we expected the linguistic experts to score high on agreement with the reflective items, lower on quasi-reflective items, and much lower on pre-reflective items.

Figure 1 shows that the seven linguistic experts indeed score high on reflective items and low on pre-reflective items. Although there is more variance between the experts' scores in the pre-reflective ($M = 2.26$, $SD = 1.15$) and quasi-reflective items ($M = 3.06$; $SD = 1.51$), the scores are considerably lower than the scores on the reflective items ($M = 4.77$; $SD = 1.01$) (see Appendix C for the raw scores). Reliability analysis showed that Cronbach's alpha was excellent for the pre-reflective (.95) and reflective (.95) scales and good for the quasi-reflective (.82) scales.

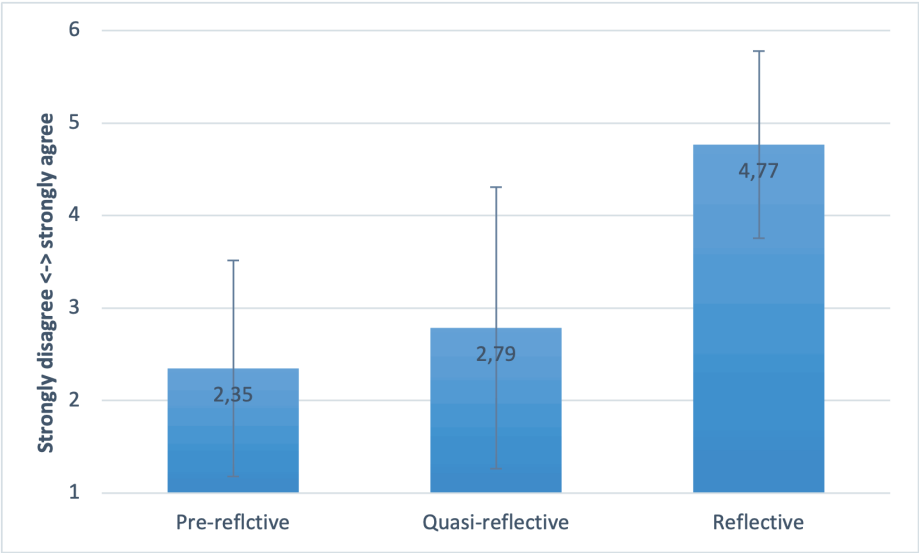


Figure 1. Experts' average scores on pre-reflective, quasi-reflective and reflective items (N = 7).

3.4.2 Students' scores

The 26 items of the questionnaire (N = 300) were factor analysed using Principal Axis Factoring) with Varimax rotation. After removing items with a loading below .3, two factors with eigenvalue's over 1 emerged, explaining a total of 36,79% of the variance, see Table 2.

The factor structure by exploratory analysis was different from the original structure of the questionnaire. Factor 1 was comprised of 5 items reported on a 6-point Likert scale with factor loadings from. 346 to.622 (see Table 2). This factor consists of 3 pre-reflective items (displayed in red, roman), 1 quasi-reflective item (displayed in orange, bold) and 1 reflective item (displayed in green, italic).

Factor 2 consisted of 5 reflective items (displayed in green, italic) with loading factors from.330 to.504 (see Table 2). The conceptual coherence between the items in the emerged factors appeared, that all items in factor 1 were associated with *convergent thinking* and all item in factor 2 were associated with *divergent thinking*.

Internal consistency for the two scales was examined using Cronbach's alpha. The reliability of the scale for Factor 1 was.57, and for Factor 2 was.48, which is commonly interpreted as poor (Factor 1) or even unacceptable (Factor 2). A substantial increase could not be achieved in alpha for the scales by eliminating more items. We return to this in the discussion.

Table 2. The two factors obtained in the exploratory factor analysis (N = 300)

	Factor 1	Factor 2
20. A word or sentence is analysed correctly when you have gone through all the steps. (P)	.622	
5. <i>Analysing words and sentences is a good way to develop inquiry skills. (R)</i>	.497	
21. When a language rule is written in your textbook, you can be nearly certain that it is true. (P)	.451	
25. In a thorough analysis all the causes of your own language intuitions will become clear. (Q)	.440	
1. The goal of analysing words and sentences is to find the correct solution. (P)	.346	
22. <i>The analysis of words and sentences is a critical search for form and meaning. (R)</i>		.504
15. <i>A good analysis of words and sentences must take different perspectives on form and meaning into account (What do you think? What do other people think? What are the rules?) (R)</i>		.446
26. <i>In many cases, linguistic experts will continue to discuss language rules and language intuitions. (R)</i>		.355
4. <i>When analysing words and sentences you must learn to deal with conflicting information. (R)</i>		.342
24. <i>Even when consulting the same sources, linguistic experts often arrive at different analyses. (R)</i>		.330
Eigenvalues	2.13	1.55
% values	21.26	15.53

Note 1: The items were tested in Dutch. The English translation is as close as possible to the original items. However, due to translation issues, there might be some differences in interpretation.

Note 2: P = Pre-reflective item; Q = Quasi-reflective item; R = Reflective item

Note 3: roman-red = pre-reflective item; bold-orange = quasi-reflective item; italic-green = reflective item

3.4.3 Differences between students' groups

There was no significant difference in Factor 2 scores between the students of the two different countries ($t(245) = 0.984$, $p = .33$). Factor 1 showed a narrow significant difference between the Dutch and Belgium students ($t(245) = 1.972$, $p = 0.050$), see Table 3. As expected, 12th grade students attribute less value to items about convergent thinking than 11th grade students ($t(170) = 3.481$, $p = .001$), see Table 3. In Factor 2, divergent thinking, we found no significant difference between the 11th and 12th grade students ($t(80) = -0.161$, $p = .872$).

Table 3 .Means and standard deviations per subgroup and samples independent T-test per factor per students' subgroup.

Students					Experts						
		<i>n</i>	<i>M</i>	<i>SD</i>		<i>t</i>	<i>p</i>	<i>M</i>	<i>SD</i>	min	max
Factor 1 <i>Convergent thinking</i>	11 th grade Belgian students	128	4.18	0.71	}	1.972	0.050	3.34	0.32	3.0	3.8
	11 th grade Dutch students	119	4.02	0.57							
	12 th grade Dutch students	53	3.65	0.77	}	3.481	0.001				
	Total	300	4.02	1.20							
	Factor 2 <i>Divergent thinking</i>	11 th grade Belgian students	128	4.58	0.52	}	0.984				
11 th grade Dutch students	119	4.51	0.51	}							
12 th grade Dutch students	53	4.52	0.66		}	-0.161	0.872				
Total	300	4.54	0.98								

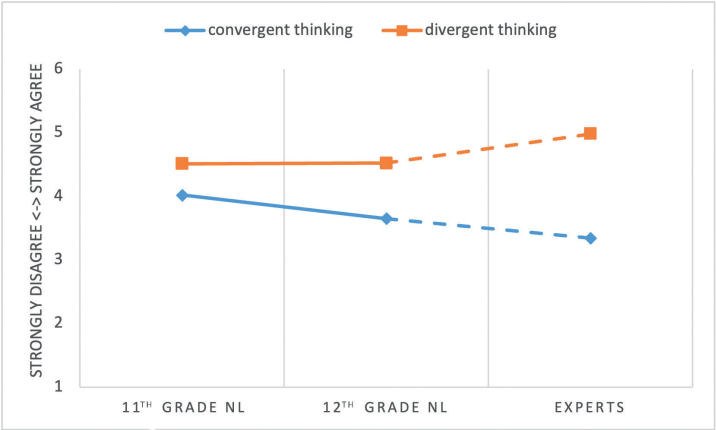


Figure 2. Scores on Factor 1, convergent thinking, and Factor 2, divergent thinking, by students from 11th and 12th grade from the Netherlands, and by linguistic experts.

Note. The dotted line represents an uncertain period. Lines do not represent development, but differences between groups in different stages of development.

3.4.4 Differences between students and experts

Experts valued items of Factor 1 lower ($M = 3.34$) and items of Factor 2 higher ($M = 4.89$) than the students did (see Table 3 and Figure 2). Reliability analysis showed that Cronbach's alpha was good for Factor 1 (.75) and excellent for Factor 2 (.98).

3.5 Discussion

The current study aimed to answer two research questions. In the first research question we examined to what extent Stoel et al.'s (2017) questionnaire could be transposed successfully to the linguistic education domain. The second question aimed at the results from using the questionnaire to measure pre-university students' epistemic beliefs on grammar.

3.5.1 Interpretation of the main results

The questionnaire had been constructed for measuring pre-reflective, quasi-reflective and reflective epistemic beliefs. From the results it appears that factor analysis did not reveal three but two factors, each consisting of five items.

Factor 1 included three items originally intended as pre-reflective, namely (20), (21) and (1) (see the roman-red items in Table 2). Item 20 having the highest loading strikingly characterises pre-reflective epistemic beliefs ('A word or sentence is analysed correctly when you have gone through all the steps'). The statement focuses on a single correct solution, and a fixed and certain method of obtaining that one solution. In addition, two other non-pre-reflective items load on this factor, namely item (25) and (5). Item (25) ('In a thorough analysis all the causes of your own language intuitions will become clear') was intended to measure quasi-reflective thinking, because it focused on analysis, which arguably would entail some kind of argumentation. However, in hindsight it is explainable why this item loads on this factor. In general, the quasi-reflective stage is a transition stage between pre-reflective and reflective. This entails that there will be boundary cases, and the awareness that some kind of analysis is possible is still in accordance with a pre-reflective mind believing that the correctness of such an analysis is fully determined by some authority. In addition, similar research shows that quasi-reflective items are difficult to measure as a group. From research (e.g., Maggioni, 2010; Mierwald et al., 2017; Stoel et al., 2017) it appears that quasi-reflective items can load together with pre-reflective ones.

Item 5 (“The analysis of words and sentences is a good way to develop your inquiry skills”) also loads on the first factor, although it was originally intended to reflect reflective epistemic beliefs. It may be that students are just repeating the words of the teacher or general beliefs here. Grammar education is often said to develop abstract thinking skills (Honda & O’Neil, 2008; Hudson, 1999, 2004; Hulshof, 2014; Van Gelderen, 2010; Van Rijt, 2020), and this may be one of their teacher’s standard answers when they ask why they have to do grammar exercises. So they may still be referring to the authority of the teacher, which is typical for a pre-reflective stage.

It seems therefore that Factor 1 is largely compatible with the pre-reflective stage. Factor 2 is even more consistent. All items were originally intended as belonging to the reflective stage. And as with Factor 2, the item with the highest load (Item 22, “The analysis of words and sentences is a critical search for form and meaning”) most typically represents reflective thinking, focusing on critical thinking.

This result begs the question whether the questionnaire in fact measures two kinds of beliefs instead of three. Research by Maggioni (2010) and Mierwald et al. (2017) also revealed only two factors, which they coined *naïve* and *nuanced* (loosely similar to pre-reflective/quasi-reflective and reflective). However, looking at the items loading on our two factors, another interpretation emerges. It looks like the items loading on Factor 1 are all in some way associated with *convergent thinking*, whereas the items loading on Factor 2 are more related to *divergent thinking* (Cropley 2006).

This is a somewhat unexpected, but interesting result. In Wijnands et al. (2021) a pedagogical template was based on two pedagogical models, one of which involved cognitive learning, and the other one reflective development. Wijnands et al. (2021) also interpreted the two dimensions of this model as *convergent* and *divergent*. In convergent thinking, when working towards conceptual understanding, the best answer is chosen, and there is no room for alternatives. As Cropley (2006, p. 3) states: ‘Answers are either right or wrong’. In divergent thinking, when working towards broader views, multiple answers are possible, which may be novel or even unusual. Divergent answers may differ among individuals, but they can, as Cropley (2006, p. 4) emphasises: ‘be of equal value’.

In this sense, the results from the current study are compatible with other research, both from our own research group and beyond.

3.5.2 Transposition of the questionnaire

In order to answer the first research question, we formulated the following two sub-questions:

- a. To what extent are the results on the questionnaire by Stoel et al. (2017) for measuring epistemic beliefs in history comparable to the results of the questionnaire for measuring epistemic beliefs in grammar?
- b. Does the questionnaire measure an expected valid developmental distinction in epistemic beliefs in grammar?

For the first sub-question, we need to look at the main results of the study by Stoel et al. (2017). In their study four main results were found: (a) a factor analysis revealed three factors, labelled as 'objective nature of knowledge', 'objective nature of knowing' and 'historical methodology'.

In contrast, factor analysis in our study came up with two factors, which we labelled as *convergent* and *divergent thinking*. At first glance, this result does not appear to be in line with Stoel et al. (2017). However, one of their factors (nature of knowing – nuanced) seems to correspond with our factor *divergent thinking*, whereas the two other factors (*nature of knowing naïve (objective)* and *nature of knowledge - objective*) all seem to have a convergent character. So there seems to be at least some correspondence between our results. The differences could be due to domain specific properties of the linguistic domain and the history domain. The items in Stoel et al.'s (2017) factor *nature of knowing – naïve* all focus on the reliability of sources. Three of the corresponding items in our questionnaire (10, 16, 17) do not load on any factor. This could be due to the fact that in the domain of secondary school linguistics, sources are less clear than in the history domain: the fact that one's own intuition can be a source is virtually absent in current grammar teaching practice, and even language reality as a source is not always used, since for example grammar teaching often focuses on prescriptive sources (cf. Berry, 2015; Hudson, 2004).

As with Stoel et al. (2017), in our study we found that students have high scores on both convergent and divergent items (convergent: $M = 4.02$; divergent: $M = 4.54$), that experts valued items originally intended as reflective (divergent) higher than items originally intended as pre-reflective (convergent) (reflective items $M = 4.89$; pre-reflective items $M = 3.34$), and that experts valued the items originally intended as reflective (divergent) higher than the students (experts $M = 4.89$; students

$M = 4.54$), whereas they valued the items originally intended as pre-reflective (convergent) lower (experts $M = 3.34$; students $M = 4.02$).

In conclusion, our first sub-question can be answered affirmatively. We can conclude that the results on our questionnaire for measuring epistemic beliefs in grammar were comparable to the questionnaire by Stoel et al. (2017) for measuring epistemic beliefs in history.

For the second sub-question, we examined whether our questionnaire measured an expected valid developmental distinction in epistemic beliefs in grammar. Stoel et al. (2017) found significant differences in epistemic beliefs between students in the highest track of higher general continued education preparing for universities in applied sciences (mean age 17 years old) and in the highest track of pre-university education (mean age 18 years old). The pre-university students scored pre-reflective items lower and reflective items higher than students in higher general continued education. In our study, we investigated differences between students in the 11th and 12th grade, the highest grade, of pre-university education.

Our results indeed suggest a similar development in *convergent thinking*: Dutch 12th grade students agreed less with items about convergent thinking than 11th grade students. Following Stoel et al. (2017), we assume this is a result of the fact that 12th graders are less focused on finding the right solution or analysis since they have progressed more in their academic development (see also Stoel et al., 2017, p. 128). In addition to this supposed development we observed (cf. Table 4, Figure 2) that experts show even less affinity with convergent thinking. This corroborates the suggestion that a decreasing affinity with convergent thinking indeed is part of a development towards academic thinking. With respect to *divergent thinking*, we did not observe a significant difference between 11th graders and 12th graders, in line with the results from Stoel et al. (2017). However, experts show a substantially higher score on divergent thinking.

In summary, it seems that our questionnaire is a valid measure for development of convergent and divergent thinking. Results are in line with expectations, and comparable to the study by Stoel et al. (2017). This means that our second sub-question can be answered affirmatively.

Based on the results on the two sub-questions, we can conclude that a transposition of Stoel et al.'s (2017) questionnaire is possible for the linguistic education domain.

The final questionnaire for measuring epistemic beliefs on language consists of ten items and measures the degree of *convergent thinking* and *divergent thinking*.

3.5.3 Epistemic beliefs on language

Our second research question was: what are pre-university students' epistemic beliefs on language compared to experts' scores? In order to answer this question, we first consider the experts' beliefs on *convergent* and *divergent thinking*. From the results (see Table 3), it appears that experts had a low score on *convergent thinking* and a high score on *divergent thinking*.¹ This confirms our expectation that experts are trained to consider different perspectives on language issues to make a well-reasoned judgment on how to assess this language issue (see Dielemans & Coppén, 2020). However, we also observe that experts score still rather high on convergent thinking. Apparently, convergent thinking is still an important aspect of expert thinking, notwithstanding their decreased affinity with it. This is in line with King and Kitchener's assertion that reflective thinking is not only a matter of multi-perspectivity (which we can identify as divergent), but also of evaluation (which essentially is convergent (cf. King & Kitchener, 1994, 2002, 2004). Convergent thinking is also acknowledged as an important part of creative thinking by Cropley (2006) and Jaarsveld et al. (2012).

Comparing the experts' scores with the students' scores on *convergent* and *divergent thinking*, we see that students' scores on *convergent thinking* are higher than the experts' scores and that students' scores on *divergent thinking* are lower (see Table 3 and Figure 2). However, we also observed that students' scores on epistemic beliefs on divergent thinking are higher than their scores on epistemic beliefs on convergent thinking.

One explanation for this would be that the scores on *divergent thinking* are a kind of baseline score, reflecting general (non-domain specific) beliefs on the nature of knowing and knowledge. The fact that there is no observable difference between 11th graders and 12th graders points in this direction. If the baseline is already fairly high, a significant increase might be less probable, since it would require more expert knowledge in linguistics, which is not a part of the secondary school curriculum in the Netherlands (see Van der Aalsvoort, 2016; Van Rijt & Coppén, 2017). The responses to the divergent items might have been influenced by students' ideas about how knowledge is gained, as Stoel et al. (2017) also describe for the historical domain.

¹ One of the experts pointed out (personal communication) that he had difficulties with filling in the questionnaire because of his interpretation of 'linguistic intuitions'. According to his expertise the analysis of words and sentences always refers to the linguistic intuitions of mother-tongue speakers. We acknowledged this remark, but this expert was the only one with deviating scoring, especially on the items 1, 15, 24 and 26. When these experts scores would be eliminated, the difference between convergent and divergent thinking would increase.

Students might have interpreted these items as descriptions of critical thinking strategies that lead to a correct or unambiguous answer (see Stoel et al., 2017, p. 131).

The baseline score on the divergent items could also be explained by students giving socially desirable answers. The divergent items might have sounded like a possible way of studying language and therefore would have received their high score. However, if students answered the items in a socially desirable way, this should not only have been the case for divergent items, but also for convergent items. Students might have been influenced by the school setting in which the focus is on giving the correct answer, resulting in higher scores on convergent items than is currently the case.

Another explanation for the baseline scores on divergent thinking might be that the 12th graders are subject to the final examinations, which could discourage divergent thinking and favour convergent thinking. A similar effect can be seen in the study by Yuen Lie Lim (2011) on reflective thinking among university students (16-21 years). Year 3 students were found to be less reflective than year 1 students because they focused more on the requirements for completing a course than on reflective thinking. We leave this matter open for future research.

A final explanation is the one Stoel et al. (2017) assume to account for the difference they found between senior general secondary education (11th grade) and pre-university education (12th grade). Stoel et al. found that pre-university students scored higher on divergent thinking (*nuanced* in their terminology). Since we only have scores of pre-university students, it could be that the difference they found was more a difference between senior general secondary education and pre-university education than between 11th grade and 12th grade, rather than a cognitive development level. Pre-university education would then always score high on divergent thinking.

Our results also show a small significant difference between 11th grade Belgian students and 11th grade Dutch students. Belgian students appeared to value beliefs on convergent thinking higher than Dutch students. An explanation for this might be that in the Dutch curriculum grammar is only taught in the 7th until 9th grade of pre-university education whereas in Belgium grammar is taught throughout the whole secondary school curriculum (so including 11th grade). Belgian students might therefore be more focused on the correct answers than Dutch students, because they are still subject to grammar teaching, which is strongly focused on testing (Van Rijt, 2020). A second explanation could be related to the different status of the prescriptive norm of Standard Dutch. In Belgium, Standard Dutch is more of a

societal issue in competition with dialectical or supra-regional variants ('tussentaal'). Although supra-regional variants are used by teachers and students in the school environment, Standard Dutch is also seen as the only acceptable language variety at schools (Delarue, 2016). Using Standard Dutch in Belgium is strongly associated with high prestige and good education (Delarue, 2016, Lybaert, 2015). This is more in line with convergent thinking about grammar, and pre-reflective attitudes.

We did not find any difference between Dutch and Belgian students in their *divergent thinking* epistemic beliefs on the analysis of words and sentences. This confirms our aforementioned assumption that the scores on *divergent thinking* are a kind of baseline score.

To summarise, this study aimed to measure the epistemic beliefs of students in secondary education about grammar by means of a questionnaire. Given the results on the two research questions, it seems that our transposition of the questionnaire by Stoel et al. (2017) offers a valid instrument that reveals a clear difference between secondary school students and experts, and to a lesser extent a difference between different categories of students.

3.5.4 Study limitations and future research

This study is the first in exploring domain-specific epistemic beliefs of pre-university students on grammar. Other studies explored general epistemic beliefs, or epistemic beliefs of teachers (e.g., Van Rijt, Wijnands, et al., 2019), and even in combination with grammar tests, but no specific epistemic beliefs of students on grammar (see e.g., Elsner, 2020).

Although our research questions can be answered with a fair degree of confidence, conclusions should still be considered with some caution. Research into epistemic beliefs by means of questionnaires is never without problems (see Maggioni, 2010). For one thing, to further validate the questionnaire, it should be replicated more often. From other questionnaires we know that students' responses are sometimes inaccurate because of the difficulty of the items (see Barzilai & Weinstock, 2015; Mason, 2016). In our questionnaire, some of the items also seemed to cause interpretation problems. More sophisticated (mixed methods) measurements are recommended for further research. For example, interviewing students after completing the questionnaire could provide more information about how they scored the items. A promising instrument for measuring epistemic beliefs is the scenario-based instrument created by Barzilai and Weinstock (2015). In this instrument epistemic beliefs are measured using dilemmas, each with two conflicting expert

reactions about which students must then score statements (see also Mason, 2016). However, this research is outside the scope of our study for now.

It was shown in 3.4.1 that for the experts' scores the reliability of the larger scales was good to excellent. However, in 3.4.2 it was noted that the Cronbach's alpha on the students' scores were considered poor. This can be a result of the small number of items on each scale (see Field, 2013, p. 709). However, these low Cronbach's alphas might also be an indication that the students found it difficult to score the items because of their lack of knowledge on this subject, which is not the case for linguistic experts. It is reasonable to assume that the experts fully understood the content of the items, resulting in a larger reliability. This would mean that a better linguistic schooling would also result in more reliable scores for students.

The questionnaire we transposed to the domain of grammar originally consisted of 26 items. In our study, factor analysis only revealed a total of 10 relevant items, equally divided over two factors. In addition to the observation mentioned above that this is mainly caused by boundary cases; a further reason for this small number of items might be that students find it difficult to score items about 'the analysis of words and sentences' because grammar teaching is often not really implemented as analysis, but rather as a low level classification exercise on the basis of rules of thumb, without much reasoning. Therefore, students might not even think about grammar as analysis of words and sentences. It would be interesting to explore in future research whether a replacement of phrases as 'analysis of words and sentences' by 'grammar' would lead to an increase in the number of relevant items. If the interpretation of items is a problem for students, it would be expected that interventions in which students are confronted with real linguistic analysis (in contrast to the usual rules of thumb) would also lead to more relevant items.

Another possible limitation is the number of students involved in this study. Our study is based on the responses of 300 students, whereas Stoel et al.'s (2017) study is based on 922 students. However, for factor analysis a minimum of 300 participants is recommended (Field, 2013, p. 684; Tabachnick & Fidell, 2013, p. 618), and therefore, despite the difference in numbers, our study does not seem to be underpowered.

Another limitation is that 12th grade Belgian students are not included. As a result, we cannot compare Belgian 12th grade students to Dutch 12th grade students. However, we would expect that the difference we observed for the 11th graders pertains, since we explained this difference by differences in the national curricula, which remain the same (the status of standard language, the curriculum structure with final exams).

In order to improve our questionnaire, and to put it to use in further research on reflective development, an obvious way to proceed is to use the questionnaire to measure reflective development in design research. To this end, an intervention should be devised to confront students with ill-structured language problems, since these are known to create the experience of *epistemic doubt*, which is a prerequisite for epistemic change (cf. Kienhuis et al., 2016 for an example from the philosophy domain).

In Wijnands et al. (2021) a pedagogical template for developing convergent and divergent thinking about ill-structured language problems has been described (see Chapter 4). In Wijnands, Van Rijt, Stoel et al. (2022), the implementation of this template will be discussed (see Chapter 5). In this template, students learn how to use primary sources such as their own language intuitions and language reality (for instance corpus data), and secondary sources, such as language advices and reference grammars to investigate an ill-structured problem more deeply. Students can work on assignments in which the focus is on the development of convergent thinking, meaning that they work towards an analysis of the language problem. But students are also stimulated to work on assignments in which the focus is on the development of divergent thinking, meaning that they investigate the language problem from different perspectives, using more different sources. When working on these divergent thinking assignments, students will be confronted with epistemic doubt which might lead to epistemic change in their reflection on the knowledge of language and knowing language. Such an epistemic change could then be measured by the questionnaire. This study suggests that the instrument is a promising way to do this.

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Chapter 4

Learning to think about language step by step. A pedagogical template for the development of cognitive and reflective thinking skills in L1 grammar education

Corresponding article:

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Abstract

Traditional L1 grammar teaching focuses on learning the correct grammar rules rather than learning how to deal with grammatical issues in real life. This is mainly due to the fact that traditional grammar education suggests that language should consist of well-formed sentences which can be analysed indisputably. However, language is often not well-formed at all (especially spoken language), and even the analysis of written language is often unclear and controversial. Students generally do not learn how to deal with the differences between the prescriptive norms taught at school, language in real language situations and their own language intuitions. They are not taught how to develop a more reflective attitude to tackle ill-structured language issues. Such a reflective attitude could be stimulated by a pedagogical approach to grammar that addresses higher-order cognitive thinking skills and teaches students how to consult language sources. In this Chapter we combine a cognitive learning model with a reflective development model into a pedagogical template aimed at stimulating both cognitive learning and reflective development.

4.1 Introduction

Since the 1970s, L1-grammar teaching has been under discussion all over the world (Locke, 2010). This discussion mainly concerns the question ‘Why teach grammar?’ (Locke, 2010; Myhill, 2016; Van Rijt et al., 2019). From an instrumental point of view it has been debated whether explicit knowledge of grammar enhances students’ literacy development, especially with regard to reading and writing (Derewianka, 2012; Graham & Perin, 2007; Hudson, 2001; Hudson & Walmsley, 2005; Myhill, 2010, 2018; Myhill et al., 2012; Van Gelderen, 2010). Empirical research has shown that traditional L1 grammar teaching mostly based on parsing isolated sentences, has no beneficial effect on writing (Andrews, 2010; Andrews et al., 2006; Clark, 2010; Graham & Perin, 2007). However, from recent research it appears that a possible effect on writing development can be achieved by contextualised grammar teaching (Myhill, 2016; Myhill et al., 2012, 2018).

In L2 education, the main theme of discussion is the so called *interface debate*, dealing with the place of explicit linguistic knowledge versus implicit, automatized knowledge systems (Graus, 2018). Form-focused instruction, which is strongly associated with explicit declarative linguistic knowledge, appears to have its merits in L2 teaching according to some, but most profoundly when it is incorporated into a meaning-focused, more communicative approach (see e.g., Doughty, 2001; Ellis, 2008; Nassaji, 2017; Nassaji & Fotos, 2011).

From a more conceptual point of view, grammar instruction is not only teaching grammar terminology, but also understanding language as an object that is of the utmost societal, individual, and cultural importance (Hulshof, 2013; Van Gelderen, 2010; Weaver, 2010). The aim then is rather to make language interesting and meaningful to students (Hulshof, 2013) by focusing on educating topics such as language acquisition and language variety. From this point of view, issues related to the relationship between grammar and literacy development are of no consequence.

Whereas Locke (2010) and Myhill (2018) concentrate on an Anglophone context, similar research is conducted for other language areas. Notably, in Francophone regions, traditional grammar from the pre-1970s was developed into a modern grammar (‘grammaire nouvelle’) emphasising the syntactic properties of phrases and sentences (see Boivin, 2018, p. 3), and giving rise to a more heuristic method stimulating students to follow the empirical cycle of first observing the data, then formulating hypotheses, testing them, and finally formulating rules that also apply to other contexts. Successful classroom implementation of the *grammaire nouvelle*

was reported in several studies (for references, see Boivin, 2018). In the Spanish-speaking areas, the focus is more on (sociocultural) interactions in grammar learning (see Camps & Fontich, 2019; Fontich, 2014; Fontich & García-Folgado, 2018; Ribas et al., 2014). According to this approach, students should be challenged by teachers to observe language together in groups in order to develop their metalinguistic capacity. In the German-speaking area (see Funke, 2018; Trozke & Kupisch, 2020), the quality of grammatical knowledge and the development of linguistic skills is addressed, starting from a more formal (or even structuralistic) linguistic perspective. In all of these recent publications, a more reflective approach to grammar education is advocated, in order to develop some form of metalinguistic awareness of the students.

Although developments towards a reflective grammar teaching are a big step forward, it can be observed that in practice, even more modernistic grammar teaching still predominantly focuses on making the appropriate grammatical choice in a certain context. This is still in contrast with the way in which linguistic experts study language. Linguists typically do not aim at establishing correctness or appropriateness, but rather at investigating, using higher-order reasoning skills, structure and meaning of language utterances in context (cf. Anderson & Krathwohl, 2001; Bloom, 1956; Coppen, 2011b, 2012; Honda & O'Neil, 2007; Janssen et al., 2019). From this point of view grammar teaching is about teaching students to think more like linguistic experts (cf. Van Rijt, De Swart, et al., 2019), and not solely focusing on improving language proficiency. The question remains, however, how this might be achieved.

This Chapter tries to take up this challenge by investigating how (grammar) education can stimulate higher levels of metalinguistic understanding (Chen & Myhill, 2016, p. 107; Van Rijt, De Swart, et al., 2019). A prerequisite for triggering these higher levels is not to confront students with clear-cut grammatical choices, but rather with problematic language issues for which a clear solution does not exist or an appropriate choice is difficult or even impossible to make, (so called *ill structured problems* in the sense of Kitchener (1983)). For instance, consider the problem of subject-verb agreement with subjects as 'You or I' in sentences such as 'You or I ARE/AM the winner'. It is not clear at all what would be 'the right choice' in these cases. Those problematic, ill-structured language problems ask for a critical and reflective attitude: students have to observe language from a broad perspective, from different point of views and in dialogue with others to underpin or change their opinions (Fontich, 2014; Van Rijt, De Swart, et al., 2019). Adopting this way of teaching in L1 grammar education is likely to develop students' insight into language and a pro-

active research disposition regarding language issues (Van Rijt & Wijnands, 2017). This is not only important for their development during secondary education or higher education, but it also will ‘facilitate students’ access to a literate society’ (Fontich, 2014, p. 279).

This Chapter addresses the question ‘What are the pedagogical means to teach students about the workings and structure of language in a more reflective way, using higher-order thinking skills?’. For now, we will approach this question from a theoretical perspective. Building on well-established, existing models of cognitive and reflective learning, a template for a new grammar pedagogy will be derived that enables teachers to develop students’ thinking skills for investigating language issues and stimulates the development of their epistemic attitude towards linguistic sources, such as reference grammars and language advice literature. First, we will elaborate on the structure of this template, then we will show different contexts in which this template can be used. A systematic testing of the template in actual classroom practice is postponed to future research (see Chapter 5 and Wijnands, Van Rijt, Stoel et al., 2022).

4.2 The development of cognitive and reflective thinking in grammar education

We will start by elaborating on the exact nature of this reflection. For stimulating reflection it is important to let students reason from different perspectives.

Any language issue can be viewed by students from three perspectives (Coppen, 2011b, 2012; Van Rijt & Wijnands, 2017): the perspective of the prescriptive grammar rules (*how am I supposed to do this?*), the perspective of language reality (*how do people actually do this?*), and the perspective of the individual language intuitions (*how would I personally do this?*). Prescriptive grammar rules focus on what is right and wrong in language. The prescriptive norm has always been an important topic of education and many prescriptive rules are given in school books, language advice books and on language websites (cf. Hubers et al., 2020). One of the main reasons teachers teach their students these rules is because they themselves have learned them, and they simply pass them on to the next generation (see Hulshof, 2002). Moreover, teachers tend to rely on simple, prescriptive rules also because they do not feel confident about their own linguistic knowledge, which indeed, as studies show, is often rather poor (e.g. Alderson & Hudson, 2013; Borg, 2003; Giovanelli, 2015, 2016; Jones & Chen, 2012;

Myhill, 2000, 2003, 2005, 2018; Sangster et al., 2013; Van Rijt & Coppen, 2017; Van Rijt, De Swart, Wijnands, et al., 2019; Van Rijt, Wijnands, et al., 2019).

From a language reality perspective, a language issue can also be considered in the context of the language we hear (and see) around us. This is the language produced by language users irrespective of its accordance with the grammatical norm (Coppen, 2011b, 2012; Van Rijt & Wijnands, 2017). Language reality can be explored on patterns of use, on socio-cultural variation, or historical change. A certain language form can be condemned by prescriptive rules, but it may flourish in certain contexts.

The third perspective to approach a language issue is the perspective from the a student's own, unique language intuition. This intuition may correspond to the language intuitions of other language users, but it can also be different (see e.g. De Hoop, 2016), giving rise to interesting discussions with peers, and the awareness that language is in a way an individual phenomenon. Traditional grammar education often aims at forcefully adapting the students' intuition to the prescriptive norm, but in linguistic research, the native speaker's intuition is considered a powerful source in the construction of theoretical descriptions of language (cf. Broekhuis, 2016).

These three perspectives often cause tensions. This is exemplified in the Dutch case of the use of the third person plural pronoun *hun* (them) (Van Rijt & Wijnands, 2017). In spoken Dutch, the use the third person dative plural pronoun *hun* (them) in subject position is very common (see Cornips, 2001; Jansen et al., 2019; Stroop, 2012; Van Bergen et al., 2011; Van Hout, 1989), as can be seen in Examples 1 and 2.

1. Hun hebben gewonnen
them have won
'They have won'

Example 1 is not in accordance with the prescriptive norm. The correct grammatical form is *zij* ('they'), since, according to prescriptive norm, 'zij' is the nominative case, which is required for the subject:

2. Zij hebben gewonnen
they have won
'They have won'

In language reality then, both 1 and 2 occur frequently, but the prescriptive norm rules exclude 1. This also conflicts with varying language intuitions: certainly for people using

1 this is a perfectly normal sentence. Yet for others, it not only violates a prescriptive norm, but also their own intuitions. As a result, often vehement discussions fluctuate between realistic, intuitional and normative perspectives, causing misunderstandings and incomprehension. Linguistic L1 education should provide the means for students to discuss these matters in a more profound way (Van Rijt, Wijnands, et al., 2019).

As remarked above, teachers and educators are often mainly concerned with the prescriptive norm. Society and government demand that students learn this norm.¹ Consequently, grammar education in most countries is mainly aimed at achieving this goal (Van Rijt & Coppen, 2017; Watson, 2015b). Moreover, there is a discrepancy between classroom practice and the official curriculum on grammar education: classroom practice is still more traditional than the official curriculum suggests (Van Rijt, De Swart, & Coppen, 2019). This seems to be mainly due to the aforementioned fact that linguistic knowledge of the teachers is underdeveloped (Alderson & Hudson, 2013; Hudson, 2016; Paterson, 2010). Because of their own low competence and subject knowledge in grammar, teachers generally are not able to prepare students to deal with linguistic issues or uncertainties (Alderson & Hudson, 2013; Boivin et al., 2018; Funke, 2018; Giovanelli, 2015; Hudson, 2016; Macken-Horarik et al., 2018; Van Rijt, De Swart, et al., 2019). As a result, education lets students down as far as dealing with the tensions between the prescriptive norm, language reality, and their own language intuitions. They are often exclusively taught about the prescriptive norm.

4.3 Pedagogical means for the development of cognitive and reflective thinking

In order to explore what pedagogical means can be applied to teach students to think about language issues from the perspectives sketched above, we will turn to two well-established models of cognitive and reflective learning. The first model is the framework for thinking by Moseley et al. (2005), which focusses on cognitive thinking and learning, especially on the characteristics of the mental activity of meaningful thinking. The second model is the Reflective Judgment model by King & Kitchener (1994) aiming at describing the development of reflective thinking. The model depicts the development of the epistemic assumptions individuals have about knowledge and knowing.

¹ As stated in e.g. Taskforce Language / Expert Group Continuous Curriculum Language and Arithmetic (Werkgroep Taal / Expertgroep Doorlopende Leerlijnen Taal en Rekenen), 2009 for the Dutch situation; Flemish Alliance of Catholic Secondary Education (Vlaams Verbond van het Katholiek Secundair Onderwijs, VVSKO), 2012 for the situation in Flanders, Belgium; The National Curriculum in England (2013) for the situation in England (see DfE, 2014; Myhill, 2018; Paterson, 2010), and Australian Curriculum Assessment and Reporting Authority (ACARA) (2009) for the Australian situation (see also Dewerianka, 2012; Myhill, 2018)).

4.3.1 Cognitive thinking and learning

In Moseley et al. (2005), a review of 41 individual frameworks for understanding learning and thinking is conducted. Following the observation that most models are in some way based on similar principles (loosely associated to Bloom's taxonomy from 1956), Moseley et al. succeeded in combining all frameworks into a three-tier model for cognitive learning. The model consists of the stages *information gathering*, *building understanding* and *productive thinking* (see Figure 1). As Moseley et al. (2005) state, this framework can be used as a general guide for thinking but also as a help for formulating learning objectives. According to them thinking in education is a goal-directed process that takes place when 'there is some uncertainty that a satisfactory end is achievable' (p. 296). Triggered by this uncertainty, the first stage is gathering information about the issue or problem from memory or through perception, asking questions such as 'What do I already know about this issue?' and 'Did I receive any information about this issue?'. In the next stage, the information thus gathered is further elaborated by manipulating, for instance through working with patterns and sharing ideas in order to understand the issue. A relevant question might be 'How can I reformulate the issue or problem?' or 'To what extent can I examine this issue?'. The final stage concerns higher-order thinking. In this stage, the issue is understood or judged through systematic enquiry, reasoning, understanding causality, problem solving, creative and critical thinking. At that stage, questions like 'How can I handle this problem?' and 'Which relevant sources can help me in tackling this issue?' occur. This is a stage of productive thinking, leading to a deeper understanding of the issue or problem. Moseley et al. (2005) state that productive thinking needs time to develop since it is a matter of disposition or habit of mind.

Turning this model into an integrated model, Moseley et al. (2005) add another layer on top of this model, representing reflective and strategic thinking, not only referring to awareness and control of thinking but also relating to motivation, emotion and affect (see Figure 1). In every stage of cognitive thinking, this reflective and strategic thinking influences the process. Unlike cognitive thinking, which can become automatic, this kind of metacognitive thinking is conscious, meaning that this it has a purpose, and it is monitored and evaluated by the individual agent. When this kind of thinking occurs, learning becomes meaningful (cf. Moseley et al. 2005). Cognitive skills may be applied without strategic and reflective thinking, but strategic and reflective learning is impossible without applying cognitive skills.

Although Moseley et al. (2005) present their model as a linear one, they admit that in the process of developing productive cognitive thinking, some subconscious backtracking may occur, causing for instance an individual to return to gathering information if in the stage of building understanding new information is needed.

However, although, Moseley et al. stress that the two-level model is a representation of how people think and learn to think and not a multilevel hierarchy, they consider it an appropriate tool for ‘use in planning and evaluating courses and curricula’ (Moseley et al., 2005, p. 316).

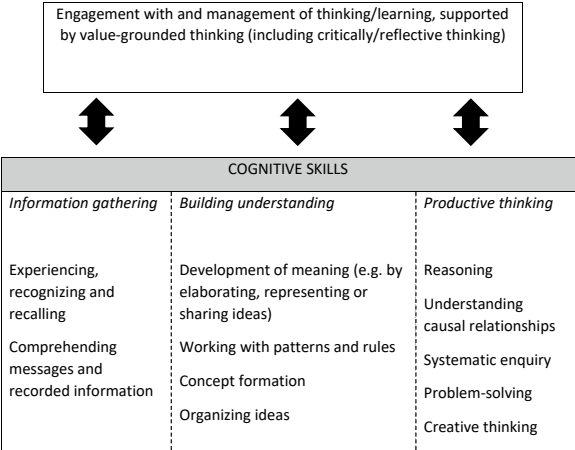


Figure 1. The integrated model for understanding thinking and learning

Note. Adopted from *Frameworks for thinking. A handbook for teaching and learning* (p. 314) by Moseley et al., 2005, Cambridge University Press. Copyright 2005, Cambridge University Press.

4.3.2 The development of reflective thinking

In the integrated framework of Moseley et al., the strategic and reflective component is not further specified or elaborated upon. The well-known model of reflective thinking developed by King and Kitchener (1994, 2002, 2004) describes the development of reflective thinking from late adolescence through adulthood. It is grounded in the work of Dewey (1933) who stated that reflectivity is an important key for learning. When individuals face a problem that cannot be solved by formal logic alone, they search for knowledge through a process of inquiry and reflection. Each possible solution is open for further evaluation and deeper understanding in this ‘condition of mental unrest and disturbance’ (Dewey, 1933, p. 13). According to King and Kitchener (1994), this process can lead to well-grounded solutions and help people to become better problem solvers. A prerequisite for reflective thinking is the epistemic assumption that uncertainty exists. Reflective thinkers acknowledge the existence of the aforementioned *ill-structured problems*.

In their research on how late adolescents and adults understand and judge ill-structured problems, King and Kitchener (2002) found (1) a remarkable difference

in the epistemic assumptions among individuals, (2) a relationship between these epistemic assumptions and the way individuals judge ill-structured problems, and (3) a development in the judgement of these problems. In their Reflective Judgment Model, King and Kitchener (1994) describe this development. They distinguish three main stages in the growth of reflective thinking resulting from three subsequent epistemic beliefs.

The first stage of development is called the *pre-reflective stage*. In this stage, the individuals reason from the epistemic belief that knowledge is correct, absolute, certain, and guaranteed by observation and authority. There is only one answer to all questions and when this does not seem to be the case, the answer is temporarily uncertain, because the evidence has not yet become clear.

Individuals moving to the next stage realise that data can differ and that authorities can have different opinions and points of view. When they come to the conclusion that some issues are really problematic these thinkers enter the *quasi-reflective stage* where their epistemic assumption is that knowledge is subjective and can differ among individuals. For these individuals, 'evaluation is individualistic and idiosyncratic' (King & Kitchener (1994, p. 16). The trigger for further development is the understanding that knowledge should be based on evidence, and that there must be a relation between beliefs, evidence and arguments. Quasi-reflective thinkers become reflective thinkers when they realise that knowledge must be constructed and understood in relationship to context and evidence. In this *reflective stage* they acknowledge that a problem can be dealt with using different solutions, which can be compared and evaluated to come to a justification of the problem. In doing so, they realise that any solution is also open for alternatives and counterevidence.

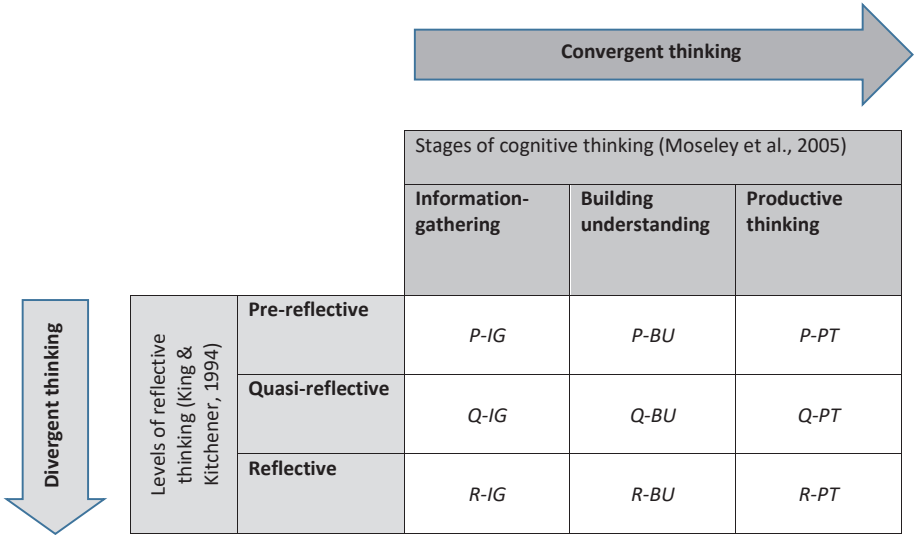
4.4 A pedagogical template for the development of linguistic thinking

Comparing Reflective Judgement theory with the model for the development of cognitive thinking, it can be argued that they complement each other. Depending on their current stage of reflective thinking, people will be likely to respond accordingly to the uncertainty that triggers cognitive thinking. For instance, a pre-reflective individual will start the cognitive process in search of only one possible answer, which is supposedly attainable through observation or consulting authorities. However, a quasi-reflective individual will rather prefer starting an argumentation, and be open for different opinions given by different authorities. A reflective individual

will prefer gathering evidence and contextual information. In this way, reflective thinking influences the way individuals further develop their cognitive thinking, and presumably conversely.

Taking the comparison one step further, it can be argued that the cognitive process described by Moseley et al. represents a kind of *convergent thinking*. Development proceeds in a goal-directed manner, aimed at some solution in the form of conceptual understanding or integrating new concepts into productive thinking. Reflective development, on the other hand, can be characterised as a kind of *divergent thinking*. With each stage, more context is taken into account. First, more authorities, more points of view, then more arguments, and finally more contextual evidence.

Moseley et al. (2005) try to integrate cognitive and reflective thinking in a model by simply distinguishing them as different components, loosely stating that they influence each other. From the comparison above it seems that a better way to integrate the two is by putting them in a matrix. Since each reflective stage influences an individual's actions in each stage of cognitive development, working from three stages per model gives us nine different combined stages (see Figure 2).



Figuur 2. Integrated model of reflective and cognitive development

Note. This figure consists of nine different stages of combined reflective and cognitive development thinking. (f.i. P-IG means: stage of Pre-reflective – Information Gathering; Q-BU means: stage of Quasi-reflective – Building Understanding; R-PT means: stage of Reflective – Productive Thinking).

First and foremost, this integrated model represents stages of combined reflective and cognitive development (see Figure 2). For instance, the upper left cell (P-IG) is an individual in a pre-reflective stage confronted with an incentive (cognitive friction) to gather information. The middle cell (Q-BU) represents a quasi-reflective individual in the cognitive stage of building understanding. Such an individual will be aimed at setting up a solid argumentation to prove a point. The bottom right cell (R-PT) is a reflective individual able to tackle complex, context-dependent language issues by combining new cognitive concepts in a creative manner. If Moseley et al.'s model and Reflective Judgement theory are on the right track, these nine stages automatically follow.

Of course, real life reflective and cognitive development will not always proceed in a linear fashion (as Moseley et al. already admitted). However, the model represents the overall pattern in the development. What is more important, however, is that the model is an appropriate tool for 'use in planning and evaluating courses and curricula' (Moseley et al., 2005, p. 316). It is a *pedagogical template*.

Using the matrix model as a pedagogical template, for each combination of reflective and cognitive development, a pedagogical arrangement can be designed satisfying the needs of the learning individuals in this stage. For instance, departing from a cognitive uncertainty, a reflective individual will most likely want to proceed in a divergent way, searching for more evidence and context. A pre-reflective individual on the other hand, will be focused on converging to the supposedly one and only correct solution to the problem. And even if reflective individuals proceed in a converging fashion, they will experience a need for diverging to more context.

Within the domain of linguistics, this pedagogical use of the matrix model can be illustrated in more detail. The three stages of cognitive thinking give learners an excellent opportunity to explore a linguistic issue. They can gather information about the issue by making use of language reality and their own language intuitions. They can build further understanding by manipulating the linguistic issue, working with language rules and patterns on word, sentence or construction level, and conceptualising the issue. In the final stage of productive thinking, they can come to a final understanding of the problem.

It is important to realise the difference between a pedagogical template and a model depicting development. Whereas development may show backtracking and even relapse, a pedagogical template considers the preferred direction to go in every given situation.

4.5 How the pedagogical template can be used in teaching

A predominant focus on correct solutions to language issues likely leads to a fossilization of pre-reflective thinking and lower-order thinking skills. The pedagogical template for grammar teaching (Figure 2) intends to expand both the cognitive and reflective thinking skills of students and teachers. It can be used for developing assignments about ill-structured language problems, and it can also be used as a tool for observing the cognitive and reflective thinking skills of both students and teachers to measure their cognitive and reflective linguistic competence. The template can help teachers to develop their own linguistic competence.

4

When the pedagogical template for grammar teaching is taken as an instrument for creating assignments about language issues, there are different routes for triggering students to develop their cognitive and reflective skills. First of all, students must be intrinsically motivated to think about a given language issue (Ryan & Deci, 2000). Therefore, the ill-structured problem should be a language issue that students recognise and that creates a certain cognitive friction (Moseley et al. 2005), which is believed to trigger intrinsic motivation (Coppen, 2011b). Starting at a pre-reflective thinking stage (in box P-IG), the cognitive friction could be that students experience that there is a conflict between the use of a certain language form (language reality) and the prescriptive norm. For instance, traditional grammar warns us against ‘dangling modifiers’ as in ‘Sitting on a bench, the sun set’, so why do they occur? And what is wrong with ‘Enclosed you will find a personal letter’ (see also Pinker (2014))?

The discovery of such a conflict is likely to make students eager to know the correct rule. In the box ‘pre-reflective - information gathering’ (P-IG), they will use their own language intuitions for judging sentences with dangling modifiers as acceptable or as unacceptable. In the box ‘pre-reflective - building understanding’ (P-BU), students learn how to recognise dangling modifiers. They will discover the properties of dangling modifiers in order to understand why those modifiers are seen as grammar mistakes and to learn how to apply the correct rule for non-finite modifiers. For instance, they may find that school grammar dictates that the subject of a non-finite clausal modifier has to be identical to the subject of the main clause. Therefore, ‘Sitting on a bench the sun set’ is an error. They learn to reformulate this incorrect sentence into the correct sentence ‘Sitting on a bench we saw the sun set’. The final box, named ‘pre-reflective - productive thinking’ (P-PT) may seem surprising in this pre-reflective stage, because building understanding concerns higher-order thinking and pre-reflective thinking is characterised by the use of lower-order thinking skills.

However, in the P-PT box, students are *introduced* to higher-order thinking skills, such as basic analyses of these ‘dangling modifiers’. They will be able to reason on their own about those linguistic issues rather than through transmission of information by a teacher. In the P-PT box, students will consult a reference grammar or language advice for confirming or adjusting the explorations they conducted in the box ‘building understanding’ (P-BU). They will also learn that in these sources dangling modifiers are judged from ‘unacceptable’ to ‘less objectionable’ to ‘institutionalised’ in the case of sentences, such as ‘Enclosed you will find a personal letter’ (see Quirk et al., 2008). They will find out that the judgements they made about the sentences with dangling modifiers in the P-IG-box might conflict on one hand with the strict prescriptive rules they investigate in the P-BU-box but might be in line on the other hand with the descriptive information in linguistic sources. In other words, these pre-reflective assignments do not only stimulate the students to reason in a convergent way to a correct solution, but also make a start with applying their knowledge and language intuitions to reasoning about counterexamples or comparable issues. This will stimulate their abstract and divergent thinking about linguistic issues.

Assignments can be complemented with a ‘toolbox’, consisting of tools to tackle linguistic problems. For instance, the subject of the non-finite clause may be made visible by a reflexive verb: ‘Amusing ourselves on a bench, the sun set’. While the assignment tells students *what* to do, the tools from the toolbox help them as to *how* to do it. There are tools for conducting basic grammar skills, such as writing down similar examples from memory, classifying word (groups) or sentences, manipulating word order in sentences, comparing languages, but also doing a query in a database, reading instructions on how to consult reference grammars and so on (in other words: the toolbox helps students to reason linguistically (Fontich & Garcia-Folgado, 2018; Honda & O’Neil, 2007; Van Rijt, Wijnands, et al., 2019; Van Rijt, De Swart, et al., 2019). Although tools are available at all stages, some tools may be more appropriate in specific stages (e.g. consulting reference grammars is best in the stage of gathering information) or even less appropriate in others (e.g. consulting reference grammars may be confusing for pre-reflective thinkers in the first two pre-reflective boxes). Students can explore their own creative thinking about language using tools if needed. Hence, these tools prevent teachers from unwittingly hindering the development of linguistic thinking by students, turning it into habitual actions and automatic routines (Fontich, 2016; Havekes et al., 2012).

An alternative route through the pedagogical template for grammar teaching could be that students after finishing the first assignment (in the box P-IG) proceed in a vertical direction, conducting the assignment in box ‘quasi-reflective – information

gathering' (Q-IG). From there, they can continue doing assignments horizontally. For example, by consulting databases of written or spoken language, they can discover how often and in which context in real language this particular language problem occurs. They may find that dangling modifiers are a common phenomenon, and in some cases (if the modifier is placed elsewhere and the intended subject is obvious) the result is quite acceptable. Or they may relate the dangling modifier to infinitival complements and their subjects. In a stage of building understanding, they may try to make sense of this variation by formulating logical principles that govern the choice of subject in a non-finite clause, or they may explore different contexts (like English by non-natives or historical English), in order to come to a more sophisticated assessment of several dangling modifier phenomena. In the final box of the quasi-reflective line (Q-PT), students will formulate for themselves which rule they are willing to apply in which context. In any stage, students can also proceed with the assignments along the reflective route. In this route, they learn to think in a (more) professional linguistic way, investigating ill-structured problems, finding out which linguistic concept causes or explains the observed variation. Students will also compare different linguistic sources and conclude that different linguistic structures have their pros and cons, and they can take a well-considered decision in which context this structure is correct and in which context it is not (Copen, 2011b).

In summary, a route through the pedagogical template for grammar teaching can proceed in both horizontal and vertical directions. By means of scaffolding (Fontich, 2014; Weaver, 2010; Wood et al., 1976), students must not only be tempted but also be facilitated to move on to a next stage in the model. This temptation and facilitation can be attained by exploring the ill-structured language problem from the three aforementioned perspectives: prescriptive norm, language reality, and language intuitions. Students can make steps from each box to another by asking themselves the question '**OK, so** what does this mean?'. This question triggers them to move in a horizontal direction, the question '**OK, but** how does this compare to...' to move in a vertical direction (see Figure 3).

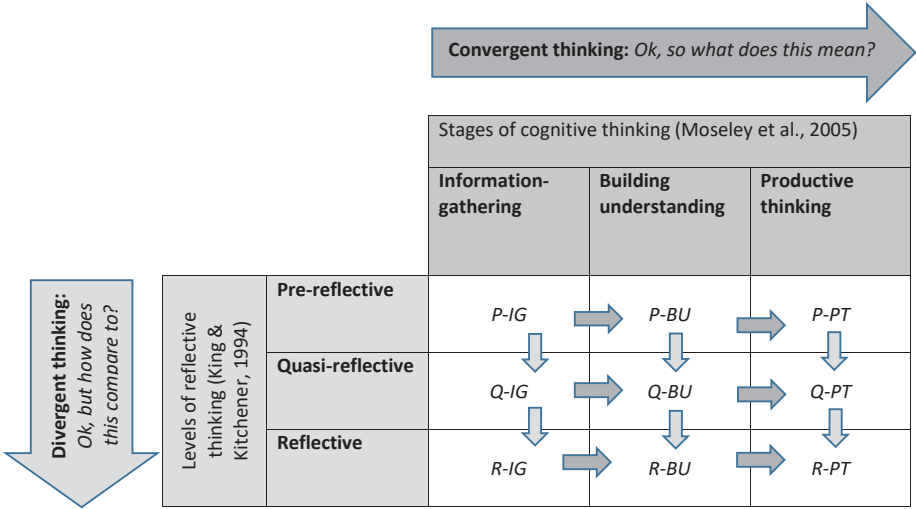


Figure 3. Pedagogical template for grammar teaching, including triggering questions

The challenge for the grammar assignment developer is to make sure that the student can choose any direction from any stage. This means that the prior knowledge and skills of each box should be provided in any route from the starting point. For example, the prior knowledge and skills for the quasi-reflective box ‘building understanding’ (Q-BU), the box in the middle of the template, should be acquired in the quasi-reflective box ‘information gathering’ (Q-IG) when students think in a convergent way, following the horizontal line in the template. But when students think in a divergent way, following the vertical line in the template, the prior knowledge and skills of the quasi-reflective box ‘building understanding’ (Q-BU) should be acquired in the pre-reflective box ‘building understanding’ (P-BU).

Another important aspect for grammar assignment developers is the stimulation of dialogue between students. In grammar teaching the employment of dialogic discussion and collaborative investigation for developing students’ reasoning about language issues enables students to reason actively on the language forms (see Camps, 2014; Fontich, 2014). Students are stimulated to compare their own language intuitions with their peers, and investigate language reality and the prescriptive grammar rules. Hence, to facilitate the development of cognitive and reflective thinking, the assignments in this template are preferably to be implemented as a peer group dialogue of students work in peer groups, talking with each other about the given language issue, while making use of possible tools from the toolbox for the direction of their talk (Havekes et al., 2012; Mercer, 2000).

In addition to serving as a pedagogical template for creating assignments and toolboxes for learning cognitive and reflective thinking, this template for grammar teaching can also be used as a tool for *observing* the cognitive and reflective thinking skills of students as well as teachers to measure their cognitive and reflective linguistic competence. From the way students analyse language issues using the three perspectives prescriptive norm, language reality, and language intuitions, students' reflective and cognitive development can be assessed. The more cognitively students think, the more they will move from lower thinking skills, such as remembering and applying, to higher-order thinking skills, such as analysing and evaluating. The more reflectively students think, the more they are inclined to take different perspectives into account, the more they discover the tensions that occur between the three perspectives that play a role in language matters, and the more they will be able to draw balanced and well-argued conclusions for linguistic problems.

In addition, teachers can test their own reflective and cognitive thinking competence with this template. According to Van Rijt et al. (2019) teachers are open to embracing a more reflective way of grammar teaching (see Chapter 2). However, in practice the textbooks they use do not stimulate this kind of thinking and teachers are not well-enough equipped for stimulating this kind of thinking because of the lack of their conceptual linguistic knowledge. This lack of conceptual knowledge inhibits teachers in helping their students to make well-informed decisions about language issues (Denham & Lobeck, 2010; Hudson, 2004; Van Rijt & Coppen, 2017; Van Rijt et al., 2020). In this pedagogical template, teachers with weak linguistic knowledge (see Alderson & Hudson, 2013; Hudson, 2016; Myhill et al., 2013; Paterson, 2010) can use the toolbox to think in a more linguistic way. This can help them to stimulate and facilitate students' reasoning about language (Gartland & Smolkin, 2015) and support students' metalinguistic thinking. (Myhill, 2003, 2005, 2018, Myhill et al., 2012, 2013). Students expect that teachers are the expert guide concerning linguistics. However, as Myhill (2005, p. 90) states: 'Teachers often become dependent upon commercial teaching materials or support materials provided by curriculum authorities (...).'

An obstacle for using this pedagogical template might be that teachers are not inclined to teach ill-structured language problems because they are used to teaching grammar in a pre-reflective thinking way (Chin & Chia, 2006; Havekes, 2015; Van Rijt, Wijnands, et al., 2019). Another obstacle might be that teachers do not have the confidence to teach problems they feel uncertain about (Giovannelli, 2015). However, since students are expected to be able to follow the steps in this pedagogical template by themselves (they have to make their own directional choices), the teachers' linguistic knowledge and reflective capacities to think about linguistic issues is

not crucial for the lesson. First and foremost, the teacher should be aware of the possibilities to proceed, and some of the repertoire or sources needed in each stage, and then think along with the students themselves.

4.6 Discussion

The main question in this article was ‘What are the pedagogical means to teach students about the workings and structure of language in a more reflective way, using higher-order thinking skills?’. We argued that three principles are essential for achieving this goal: analysing language from the perspectives of the prescriptive norm, language reality, and language intuitions by students; facilitating the development of cognitive thinking and stimulating the development of reflective thinking by teachers.

Building on the framework of Moseley et al. (2005) for learning cognitive thinking and the model of Reflective Judgment model of King and Kitchener (1994, 2002, 2004), we designed a template for a different grammar pedagogy: a pedagogical template for the development of cognitive and reflective thinking about grammar issues. This template for grammar teaching is a teaching template enabling teachers to design pedagogical arrangement to teach students using higher-order thinking skills for the study of language and enhancing their epistemic beliefs about language rules and linguistic sources, such as reference grammars. The use of linguistic sources offers students a broad perspective on the language reality, since these sources demonstrate how professionals reason about language. The template can also be used as an instrument to test the cognitive and reflective thinking competence of students when facing a linguistic issue. We also pointed out that this template can be used by teachers for testing their own reflective and cognitive thinking competence.

It has to be taken into account that the pedagogical template in this Chapter has not been tested in the classroom yet. We are currently in the process of empirical testing in classroom practice, having worked out a full template for a certain linguistic issue, and observing how different types of students follow different routes through the template (in which several patterns emerge).

Another important issue for the evaluation and practical application of this template is the role of the teacher. According to Van Rijt, Wijnands, et al. (2019) teachers lack the conceptual knowledge necessary to teach their students to make well-informed decisions about language issues (see also Alderson & Hudson, 2013; Hudson, 2004). This omission can lead to a pre-reflective attitude of the teachers because they lack

the skills to scaffold their students in the development of cognitive and reflective thinking. Although the toolbox can partly solve this problem, there is still a risk of a normative teacher bias (Hudson, 2004). This focus on the prescriptive rules can stop the thinking process of students because they are inclined to look at teachers as know-it-alls (Mercer, 2000). Follow-up research should examine the role of the teachers when working with this template.

Additionally, another limiting factor for the development of cognitive and reflective thinking is the traditional way of assessing grammar. From Van Rijt, Wijnands, et al. (2019), it appears that text books strongly focus on lower-order thinking skills and pre-reflective thinking skills. In current Dutch textbooks, 99 percent of all the exercises concern lower-order thinking skills (Van Rijt, Wijnands, et al., 2019). Because of the constructive alignment between assessing and teaching (Biggs, 1996), current Dutch grammar assessing does not surpass lower-order thinking skills either. Hence, working in the classroom with a pedagogical template that focuses on the development of both cognitive and reflective thinking should will require the development of a more appropriate way of assessing, preventing that students only learn for the test and therefore remain pre-reflective thinkers. Instead, they have to learn to weigh different linguistic analyses from different perspectives. With the template presented in this Chapter both the cognitive linguistic development and the reflective thinking development of students can be stimulated and assessed.

The pedagogical template has been designed for L1 grammar teaching in the upper levels of secondary education. However, depending on the assignments and toolboxes, it can be applied to all levels of education. In fact, its core, the differentiation in cognitive and reflective learning, is not limited to L1 grammar teaching or in fact, even to language education. It can be used in every teaching situation in which ill-structured problems occur. Finding their own route through this template helps students developing their cognitive and reflective thinking skills. This form of creative learning can also stimulate and facilitate them to bridge the gap between secondary school and university studies in general.

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Chapter 5

Balancing between uncertainty and control: Teaching reflective thinking about language in the classroom

Corresponding article:

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Abstract

To stimulate their linguistic awareness, students should be encouraged to think critically and creatively. This requires a reflective thinking attitude, which can be fostered by confronting students with language problems without an indisputable solution. However, the absence of an unambiguous answer can lead to uncertainty among students. Little is known about how language teachers respond to this type of uncertainty. In this qualitative study, we examined how teachers ($N = 5$) responded to and evaluated lessons in which students ($N = 78$, ages 15-18) were confronted with an ill-structured language problem. Teachers designed and redesigned the lesson over two iterations. Afterwards the final design was tested and students' behaviour was analysed qualitatively. Results show that teachers strongly focused on students' cognitive thinking performance, argued for a need of control, and, although realising the necessity of epistemic doubt for epistemic development, possibly misunderstood reflective thinking as just thinking about language.

5.1. Introduction

In current directions in educational reform, the stimulation of language awareness in the classroom is receiving a lot of attention, e.g., in the Netherlands (Curriculum.nu, 2019), Belgium (VVSKO, 2014), the United Kingdom (DfE, 2014), and Australia (ACARA, 2009). Language awareness, defined by the Association of Language Awareness (ALA, n.d.) as “explicit knowledge about language, and conscious perception and sensitivity in language learning, language teaching, and language use,” reportedly gives learners a better understanding of how language works and can help them make conscious choices in language use (Myhill, 2016; Chen & Myhill, 2016; Myhill, 2021). To develop language awareness, learners must learn to think about language. This requires content knowledge and procedural knowledge (Havekes, 2015; Havekes et al., 2017; Lipman, 2003; van Rijt, 2020), but knowledge of the epistemic underpinnings of the domain is also required for the development of a reflective thinking attitude (De Wilde, 2019; Hofer, 2002; Hofer & Pintrich, 1997; Lipman, 2003; Maggioni, 2010; Muis, 2007; King & Kitchener, 1994, 2002, 2004).

In terms of the development of a reflective attitude toward language, two types of reflection can thus be distinguished: (1) reflection on language and (2) reflective thinking, with the latter involving more dimensions than the former. Reflective thinking deals not only with content knowledge and procedural knowledge about language, but also with epistemic beliefs in the linguistic domain. Although many researchers have explored pedagogical approaches that can enhance students’ reflections on language (e.g., Boivin, 2018; Camps & Fontich, 2019; Denham, 2020; Fontich & García-Folgado, 2018; Ribas et al., 2014), the focus on the epistemic dimension of reflective thinking is still underexplored. Most research so far has examined *reflection on language*, i.e., the exploration of language using content knowledge and procedural knowledge in order to deepen students’ understanding. Camps and Fontich (2019) point to several examples of metalinguistic activities that can be engaged in as a means of reflecting on language, such as observing, comparing, classifying, justifying, analysing, modifying, combining, and transforming; these are activities that can often be stimulated by exploratory talk. In these studies, the teacher’s role is to design activities to explore language from different perspectives and to reflect with students on what they have discovered. Although the field is beginning to establish a clear idea of how reflection on language can be stimulated, our understanding of students’ reflective thinking in the linguistic domain is very incomplete.

Research suggests that fostering reflective thinking in students might be challenging for language teachers. In order to stimulate students' *reflective thinking about language*, it is necessary to confront them with language problems that do not have an indisputable solution (so-called *ill-structured problems*; King & Kitchener, 1994). The lack of a clear answer forces students to explore different perspectives, potentially leading them to adjust their epistemic views on language; however, at the same time, this lack of a clear answer may also cause uncomfortable uncertainty among the students. Little is known about *language teachers'* responses in turn to these responses from students when uncertainty about language problems is brought into the classroom. From previous research, it appears that Dutch language teachers express positive views on reflective thinking in the classroom: that is, they would like to see more of it in grammar teaching (see also Van Rijt, Wijnands, et al., 2019, Van Rijt, 2020). However, teachers' limited linguistic knowledge about how to explore language problems may prevent them from engaging in reflective practice (Myhill et al., 2013; Myhill, 2018; Van Rijt et al., 2021). Further research on the development of students' reflective thinking and the role of teachers in this development has been conducted in the history domain; this work has indicated that history teachers are reluctant to allow uncertainty into the classroom (Stoel et al., 2022; Voet & De Wever, 2016; Wansink et al., 2016), expressing a desire to be certain about uncertain issues themselves before teaching them.

The current study examines how Dutch language teachers experience reflective thinking about language problems while teaching students in the upper half of secondary education (11th grade, 16-17 years). It focuses on how teachers respond to the doubts and uncertainties that students face when reflective thinking about language issues is implemented in the classroom, and on how, based on these experiences, they go about redesigning a classroom implementation that aims to enhance students' reflective thinking skills.

In section 5.1.1 we elaborate on reflective thinking about grammar and present a pedagogical template for bringing reflective thinking into the classroom. In section 5.1.2 we present the design and research questions of the current study.

5.1.1. Reflective thinking about grammar

According to Dewey (1933), Vygotsky (1962), and many of their heirs, reflectivity is an important key to learning. Reflectivity is defined as "a meaning-making process that moves a learner from one experience to the next with a deeper understanding of the relationships with and connections to other experiences and ideas" (Rodgers, 2002, p. 845). It is also considered to be "a systematic, rigorous, disciplined way of thinking,

with its roots in scientific inquiry” (Rodgers, 2002, p. 845). Reflective thinking is, on the one hand, influenced by epistemic beliefs, which are commonly described as beliefs about the nature of knowledge and the nature of knowing. On the other hand, reflective thinking also drives the development of epistemic beliefs in turn (Hofer, 2002; Hofer & Pintrich, 1997; Muis, 2007; King & Kitchener, 1994, 2002, 2004). In other words, the relationship between reflective thinking and epistemic beliefs is a bidirectional one.

Research suggests that secondary school students possess almost no reflective thinking skills (King & Kitchener, 2004); their thinking can often be classified as pre-reflective. Students generally hold the naïve epistemic belief that knowledge is fixed. Applied to the analysis of language, this might translate into a belief that language is well-structured and can be analysed in indisputable ways. Students appear to rely mainly on authorities, such as their teachers, the educational methods employed by their school, or language advice services, to identify the correct solution to a language-related problem; these problems typically come down to the question of whether some language form is correct or incorrect (Elsner, 2020; Wijnands et al., 2021). In contrast, reflective thinkers (e.g., linguistic experts) hold the epistemic belief that knowledge can be seen as a relative truth, and thus that the solution to a problem is the best choice in a given context and is justified by contextual considerations. In analysing a language issue, they will not only explore the prescriptive language rules, but also consider other perspectives, such as language reality and their own language intuitions, to explore different contexts in which a certain language issue may arise, ultimately arriving at a well-balanced evaluation of the problem (Fontich, 2014; Wijnands et al., 2021). In order to stimulate pre-reflective thinkers to move toward more reflective thinking, it is necessary to confront them with some form of uncertainty by presenting them with ill-structured language problems—i.e., language problems without a fixed solution (Bendixen & Rule, 2004; King & Kitchener, 1994; Krieshues et al., 2016). Such problems are likely to challenge pre-reflective thinkers to change their usual thinking and potentially lead to an adjustment in their beliefs. To achieve successful implementation of this type of approach in the language classroom, a teacher must exhibit a positive attitude toward the process of confronting students with uncertainty.

Wijnands et al. (2021) constructed a pedagogical template for grammar pedagogy aimed at stimulating and facilitating students’ thinking on ill-structured language problems (see Figure 1). In this template, two different ways of thinking about language issues are combined. The first way to approach a language issue is to think about it *in a cognitive way*. Following Moseley et al. (2005), the process of

thinking about a language issue begins with *gathering information*, for instance by recalling from memory what already is known or by exploring the grammaticality of the case at issue. In the phase of *building understanding*, the language problem can be manipulated, for instance via the aforementioned metalinguistic activities described by Camps and Fontich (2019). The issue can also be viewed from different perspectives, such as a historical perspective or a language variety perspective. In the final phase, *productive thinking*, the language issue needs to be evaluated in order to understand the relevant causal relationships (Coppen, 2011b).

The second way of approaching a language issue is to reflect on the nature and sources of one's linguistic knowledge (Elsner, 2020; Wijnands et al., 2021). Wijnands et al.'s (2021) pedagogical template assumes that the learner undergoes some degree of development in reflective thinking. Following King and Kitchener (1994), the model distinguishes three levels of development: a *pre-reflective* level, corresponding to the epistemic belief that knowledge is fixed and determined by authorities; a *quasi-reflective* level, where the epistemic belief is that knowledge of language is subjective and can be temporarily unavailable, but a correct answer can still be identified by selecting a best solution that applies to all contexts; and finally a *reflective* level, featuring the epistemic belief that knowledge of language can vary among individuals, and that such knowledge is not fixed but should be constructed differently in different contexts and approached from different perspectives.

While cognitive thinking relates to the cognitive phases involved in thinking about a problem (*how to think*), reflective thinking relates to students' epistemic beliefs, on the basis of which they can determine the exact nature of a problem (*why to think*). These two ways of approaching a linguistic problem can be combined into a single pedagogical template. Doing so creates a template consisting of nine boxes, each corresponding to learning activities that are applicable at a certain stage of cognitive thinking and a certain stage of reflective thinking, focusing on one or more perspectives. These boxes form the pedagogical template illustrated in Figure 1.

When this template is implemented in an educational context, students can determine their own routes through the template. After completing tasks corresponding to a particular box, they are provided with two reflection questions, which they use to decide whether to move one box to the right to converge toward a possible solution, or one box down to diverge in order to explore the issue more deeply.

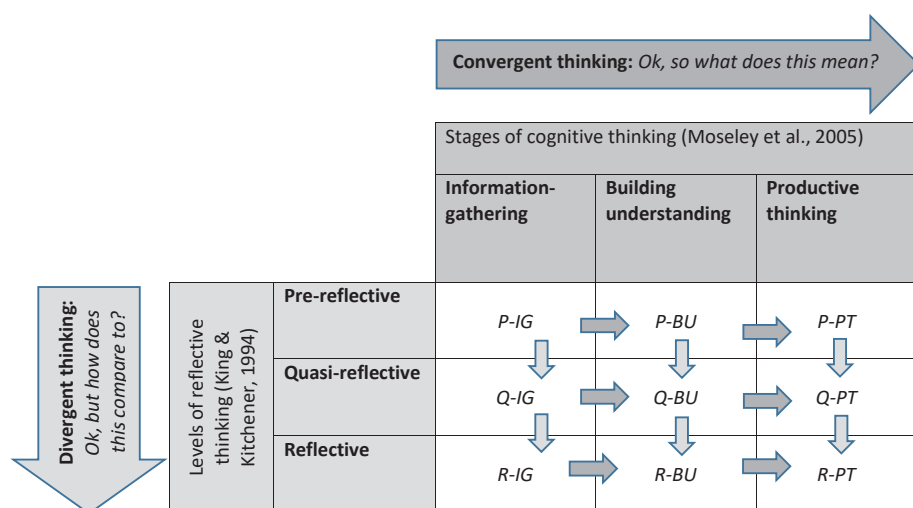


Figure 1. Pedagogical template for grammar teaching; adopted from Wijnands et al. (2021)

Note. This Figure consists of nine different stages of combined reflective and cognitive development thinking. (f.i. P-IG means: stage of Pre-reflective – Information Gathering; Q-BU means: stage of Quasi-reflective – Building Understanding; R-PT means: stage of Reflective – Productive Thinking).

5.1.2. The current study

The current study investigated teachers' responses to the implementation of Wijnands et al.'s (2021) template in the classroom. This is the first study to implement a classroom intervention aimed at stimulation of reflective thinking about ill-structured language problems. The focus was on exploring teachers' experiences with this intervention and their suggestions for redesigning it. In particular, we were interested in how teachers deal with uncertainty, both in the learning environment and in students' learning. Therefore, the research question was as follows:

How do teachers experience and redesign the classroom implementation of Wijnands et al.'s (2021) pedagogical template aimed at enhancing reflective thinking in the domain of language?

Following a Lesson Study (LS) approach, we conducted two rounds of implementation, evaluation, and redesign of the template-based intervention, and subsequently tested the final design. In this study, we formulated the following sub-questions:

- 1 How do teachers evaluate students' performances in reflective thinking, and redesign the classroom implementation after the first execution?
- 2 How do teachers respond to students' performances in reflective thinking in the execution of the redesign, and how do they further redesign the classroom implementation after this second execution?

- 3 What can be concluded from students' performances in reflective thinking in the execution of the final design of the classroom implementation?

5.2. Method

5.2.1. Overall design

The study was designed following the LS approach (De Vries et al., 2016). Under this approach, teachers develop a research lesson that they observe and jointly evaluate within a Pedagogical Learning Community (PLC) together with a Knowledgeable Other. The first author of the present article adopted the role of the Knowledgeable Other in this study. Two cycles of LS were conducted. In each cycle, one teacher implemented the template, the other participating teachers took field notes by observing three students, and the first author interviewed the students. In each cycle, the lesson was then evaluated by the PLC, resulting in revisions to the intervention for the next round of implementation. These two LS cycles were followed by a final implementation of the lesson in which the final design was tested in two classes taught by two different teachers.

5.2.2. Participants

Three Belgian teachers of Dutch Linguistics and Literature (1 female, 2 male) from two different schools participated in the PLC within which this study took place. Each of the teachers (referred to henceforth by the pseudonyms Lily, Charlie, and Bob) held a university degree in Dutch Linguistics and Literature, and the length of their teaching experience varied from 6 to 14 years. They were invited to participate in the study by a teacher educator (male) from the University of Leuven (pseudonym George) and a curriculum developer (female) from Catholic Secondary Education Flanders (pseudonym Mary), both of whom also participated in this PLC. They participated in the creation of the initial assignments and functioned as critical friends during the process. The three teachers invited their 11th grade students ($N = 80$) to participate in this study. All participants signed a consent form which stated that their data would be used anonymously for research purposes. Two students withheld their consent, so their data were not included in the analysis, leaving a total of 78 participating students (mean age = 16.2 years, range 15–18 years; 51 male, 27 female). The study was approved by the ethical committee of the Radboud University in Nijmegen, under reference number 18U.019822.

5.2.3. Preparation phase: initial design of the classroom implementation of the template

In nine meetings taking place before the first LS cycle, the first draft of Wijnands et al.'s (2021) pedagogical template (Figure 1) was explained and intensively discussed. The initial idea was to have the students begin with a lesson prior to the template-based lesson to determine their level of reflective thinking, upon the basis of which they would then complete the assignments associated with the appropriate boxes in the template. However, the preparatory assignments the teachers had in mind overlapped with the assignments they wanted to develop for the three levels of reflective thinking in the Gathering Information column. Therefore, a decision was taken to have all the students start with the assignment in box 1 (pre-reflective thinking–gathering information, hereafter referred to as the “box 1 assignment”); this approach was also in line with King and Kitchener (1994), who claim that students from this target group mainly have only pre-reflective thinking skills. Following this assignment, students could subsequently determine whether they wanted to work toward establishing a rule by moving in a convergent direction (moving to the right in the template) or explore more contexts by moving in a divergent direction (moving downward in the template). This decision implied that the first pre-reflective assignment presented in box 1 should already evoke some cognitive friction so that students would hesitate over their choice between these two directions.

Also the design criteria for the assignments to be associated with each of the nine boxes were discussed. An important overall design criterion on which the teachers agreed was that students should be able to work on the assignment with as little teacher guidance as possible, because such input might inhibit students' experiences of epistemic doubt and their reflective thinking about the issue. Students might perceive this support as providing the right way to solve the problem because it would be provided by an authority figure (i.e., the teacher). Therefore, content-related and procedural support were implemented as part of the assignments and in an accompanying toolbox.

The assignments were designed according to the following design criteria:

- The assignment corresponding to each box must meet the cognitive and reflective thinking requirements for that box (Wijnands et al., 2021).
- Assignments should create tensions that would trigger the question of whether students want to know more about a possible rule (i.e., to move in a convergent direction) or explore more contexts (move in a divergent direction; Wijnands et al., 2021).

- Assignments should require students to explore different sources to examine the language issue. Three types of source should be increasingly incorporated into the assignments: sources on prescriptive language rules (*how should we do this?*), sources reflecting linguistic reality (*how do people actually do this?*), and individuals' own language intuitions (*how would I personally do this?*; see Coppen, 2012a, 2012b; Van Rijt & Wijnands, 2017; Wijnands et al., 2021). Sources focusing on prescriptive language rules were drawn from language advice services, and sources focusing on language reality were selected from language corpora or from relevant passages in a reference grammar.
- It should be possible to complete the assignments without prior instruction on the structure of the problem or the possible approaches to solving it. Assignments should enable students to explore the problem for themselves across the three phases of cognitive thinking and the three levels of reflective thinking, starting with their own intuitions about grammar. To provide scaffolding for students' thinking, a linguistic toolbox was developed for the advanced assignments, consisting of references to grammatical rules and links to sources for further investigation (Wijnands et al., 2021). Students would be able to use these tools during the course of their reasoning about the issues. These tools would also help them to consult language advice services, texts from reference grammars, and corpora, which would allow them to construct their own conceptualizations of the language problem at issue (Camps, 2014; Fontich, 2014).
- The assignments should be suitable for completion by homogeneous groups of three students and should engage students in exploratory talk (e.g., Fontich & García-Folgado, 2018; King & Kitchener, 1994; Mercer, 2000; Rodgers, 2002, p. 845).

As the subject matter for the assignments, the teachers selected the linguistic issue of Adjective–Noun (AN) combinations. These AN combinations can occur in Dutch in the form of Adjective–Noun compounds (AN-compounds) or Adjective–Noun phrases (AN-phrases), often leading to a difference in meaning. Compare, for example, the AN-compound “kleinkind” (*grandchild*) and the AN-phrase “klein kind” (*small child*), or the AN-compound “plattekaas” (*quark*) and the AN-phrase “platte kaas” (*flat cheese*). Clear contrasts between AN-compounds and AN-phrases can be observed in terms of orthography, phonological and morphological properties, the use of intensifiers, and modification. However, despite these clear contrasts, the spelling of AN combinations is not as systematic as it first appears. For instance, in Dutch “wittekool” (*white cabbage*) and “groenekool” (*green cabbage*) can each be written either as a compound or as a phrase, while “witte asperges” (*white asparagus*) and “groene asperges” (*green asparagus*) can only be written as phrases according to prescriptive language rules. However, this rule may be violated if the context calls for the use of the compound

spelling, e.g., “groene witteasperges” (*biological white asparagus*); see Appendix D for more details. In the preparation phase, teachers explored this issue and developed assignments for each box in the template.

The teachers created nine assignments relating to AN combinations. Each assignment triggered a particular stage of cognitive and reflective thinking. As students moved toward more nuanced (quasi-)reflective levels, the assignments incorporated an increasing number of perspectives by drawing on an increasing range of sources, including language advice services, texts from reference grammars, and text corpora (see Appendix E for a summary of the assignments used in the final design). The assignment corresponding to box 1 did not yet incorporate sources, but instead asked students to explore their own language intuitions. In this assignment, students were presented with two restaurant menus with ingredients written in the form of AN combinations. The ingredients listed on menu A were written using AN-phrase spelling, and those listed on menu B used AN-compound spelling (see Figure 2). The students were asked the question:

If the chef cooks like he spells, whose food is best? Make sure you agree on your choice as a group. Which chef does your group choose? Give at least two reasons.

Figure 2. Box 1 assignment in the initial design.

LUXE DINER (luxury diner) by Chef Gino	LUXEDINER (luxury diner) by Chef Daan
witte wijn (white wine)	<i>wittewijn</i> (white wine)
rode kool (red cabbage)	rodekool (red cabbage)
groene paprika (green bell pepper)	<i>groenepaprika</i> (green bell pepper)
<i>zacht gekookt ei</i> (soft boiled egg)	<i>zachtgekookt ei</i> (soft-boiled egg)
magere melk (skim milk)	<i>mageremelk</i> (skim milk)
platte kaas (flat cheese)	plattekaas (quark)
<i>slank brood</i> (slimming bread)	slankbrood (low calorie bread)
halve kip (half a chicken)	<i>halvekip</i> (half a chicken)
<i>zwarte woud ham</i> (black forest ham)	zwartewoudham (black forest ham)
vers slaatje (fresh salad)	<i>versslaatje</i> (fresh salad)

Note. Items displayed in italics are incorrectly spelled in Dutch. Those displayed in boldface can be written using either spelling, depending on the meaning or context in which they are used. In the material provided in the lesson, all words were written in roman typeface, without these indicators.

5.2.4. Implementing the design in the classroom

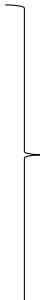
During each lesson, students worked on the assignment in groups of three. Members of each group were seated back-to-back and group discussion was conducted through the educational discussion tool Backchannel Chat so that these discussions between the students could be captured.¹ In addition to this, the teacher and the first author selected three students from each class for detailed observation and interview; selection was based on students' estimated reflective thinking skills, in such a way as to recruit heterogeneous groups of interviewees. At the end of the lesson, the researcher conducted a semi-structured interview with these students to obtain a clearer sense of how the task was performed. This interview was audio recorded and transcribed.

During Evaluation 1, all teachers jointly discussed the strengths and weaknesses of the lesson, with reference to the students' chat logs, the teachers' classroom observations, and the transcripts of the student interviews, in order to establish whether the assignments had triggered reflective thinking about AN-combinations among the students. This evaluation resulted in a redesign of the intervention.

Subsequently, the redesign was implemented and evaluated using the same approach and methods as with the initial design (see Table 1). Evaluation 2 led to the final design, which was tested with students in Lessons 3 and 4. These lessons formed the basis for a final analysis to assess whether the revisions made following the second evaluation were successful.

¹ Due to technical problems, in the first lesson the groups' discussions were captured on paper rather than digitally.

Table 1. Data collection in each phase of the study

	LS Cycle	Lessons delivered	Input for teachers' evaluation	Corresponding research question and data analysed in the current study
Initial design	1	Charlie's class: • Lesson duration: 35 minutes • 21 students, mean age = 16.0 years • 7 student groups • Field notes • student interviews	• Students' chat logs from class (1,401 words total) • Field notes • 3 student interviews	Sub-question 1: Teachers' evaluation of the initial design (<i>Evaluation 1</i>) • 6 PLC participants • 66 min • 5,925 words total
Redesign	2	Lily's class A: • Lesson duration: 100 minutes • 20 students, mean age = 16.2 years • 6 student groups • Field notes • 3 student interviews	• Students' chat logs from class (10,070 words total) • Field notes • 3 student interviews	Sub-question 2: Teachers' evaluation of the redesign (<i>Evaluation 2</i>) • 5 PLC participants • 117 min • 18,614 words total
Final design		Bob's class: • Lesson duration: 50 minutes • 16 students, mean age = 16.3 years • 5 student groups Lily's class B: • Lesson duration: 100 minutes • 21 students, mean age = 16.3 years • 7 student groups		Sub-question 3: Students' chat logs from class (14,638 words total)

5.2.5. Data collection

Data were collected in a layered fashion over the course of LS cycles 1 and 2. In both cycles, we collected data from the classroom. Subsequently, these data were used as input for the evaluations carried out with the teachers in order to improve the lesson materials for the next LS cycle. The evaluations conducted within the PLC were also audio recorded and transcribed. Subsequently, these transcripts were analysed in order to answer sub-questions 1 and 2. To answer sub-question 3, we analysed the student data collected during the final implementation of the intervention. Table 1 presents an overview of the design of the study and the data collection process.

5.2.6. Data analysis

Evaluations 1 and 2 (data from which were used to answer sub-questions 1 and 2, respectively) were recorded, transcribed, and qualitatively analysed, using an open coding in a grounded theory approach (Corbin & Strauss, 2015; Gibbs, 2018) with sensitising concepts (Bowen, 2006). We carried out this procedure in accordance with Wellington's (2015) four stages: *immersion*, *reflecting*, *taking apart*, and *recombining and synthesising*. In the *immersion* stage, the first and fourth author coded the first 50 conversation units² of Evaluation 1 together, using open coding in Atlas.ti. The first author continued coding this data set and discussed any problems with the fourth author in order to achieve agreement on the coding. In the *taking apart* stage, the list of open codes was reduced to thematic code groups. In this stage, Evaluation 1 was also coded on the basis of positive and negative evaluations by the teachers (see Appendix F). Specifically, when the teachers responded positively to student input, the corresponding code was labelled as positive; when they responded negatively, the corresponding code was labelled as negative. For example, teachers always responded positively when students used subject-related terminology (resulting in positive labelling for codes including use of such terminology) and always responded negatively when students failed to provide argumentation to support their reasoning (resulting in negative labelling for codes that referred to argumentation). Some codes could not be labelled as positive or negative, e.g., when teachers talked about revisions to the intervention for the next lesson. Through *synthesis* of the groups of codes with these positive and negative labels, the underlying factors of the evaluation became apparent. Data from Evaluation 2 were analysed using the codebook generated in the analysis of Evaluation 1, with the addition of new sub-codes where necessary.

Following the axial coding method (e.g., Corbin & Strauss, 1990, 2015), we first identified the *central phenomenon* for each data set. In both evaluations, teachers reflected extensively on how students had interacted with the instructional materials provided. In both rounds of evaluation, teachers also reflected primarily on the level of cognitive thinking at which students had performed. Second, we explored the causes that brought out the central phenomenon (*causal conditions*). We found that these causes were related to three overarching coding categories: (a) working with the template (e.g., code *problem with the delivery of this lesson*), (b) the content of the chat logs (e.g., code *students' reasoning*), and (c) teachers' need for control (e.g., code *motivation for choosing the next assignment*; see Appendix F). Third, we explored the nature of the revisions (*action strategies*) that the teachers suggested. We found that teachers' suggested revisions were mainly at the levels of the classroom implementation, the content of the assignments, the process by which students

² A conversation unit is defined as one turn in the conversation.

chose their next assignment, and student learning outcomes (see, e.g., *code revisions for next lesson*).

Students' behaviour during the lesson in which the final intervention design was delivered was qualitatively analysed on the basis of the main revisions resulting from Evaluation 2. We analysed: (a) how students motivated their choices of which assignment to move to next, (b) students' responses to cognitive questions posed in the assignments, and (c) students' self-reports of their experiences of the lesson and their learning outcomes. The aim of this analysis was to explore the implementation of the final design.

The motivations for the students' choices of which assignment to do next, derived from the Backchannel Chat transcripts, were analysed inductively by the first author. In cases of doubt, the fourth author was consulted. This analysis led to the identification of four distinct types of motivation, namely those concerning (*un*) *certainty* (e.g., "Do we know the rule?"), those concerning *comfort* (e.g., "It is easier"), those concerning *wonder* (e.g., "Is there any difference?"), and *other*.

The effect of the posing of a cognitive question about AN combinations as part of the box 1 assignment was also analysed. In the final design, teachers added a question to this assignment, asking students what they thought the difference was between AN-phrase spellings and AN-compound spellings. The literature indicates that the use of subject-specific terminology is a good predictor of the quality of reasoning (Van Rijt, 2020). Therefore, we analysed students' responses to this added question to determine whether students used more such terminology after this question was added in comparison to the lesson in which the first redesigned version was used.

Finally, students' self-reports were collected at the end of each lesson by asking them to write down in the chat channel their answers to the questions "How did you experience this lesson?" and "What did you learn from this lesson?" Responses to the first question were scored as *positive* (e.g., "It was a nice experience"; "It was very informative"), *negative* (e.g., "I think it's a weird assignment"; "It was boring"), or *difficult* (e.g., "The Dutch language is difficult"; "The questions were not as simple as expected"). The second question was analysed in relation to two aspects, namely the use of linguistic concepts as a predictor of the quality of reasoning (see also Ribas, Fontich, & Guasch, 2014; Fontich, 2016; Van Rijt, 2020), and the use of sources, such as context or language intuitions, as a predictor of more nuanced epistemic thinking about language issues (see also Dielemans & Coppen, 2020; King & Kitchener, 1994; Van Rijt, De Swart, et al., 2019).

5.2.7 Researchers positionality

As a lifelong educational designer in linguistics, the first (main) author strongly believes that innovation in linguistic education can only be designed in co-creation with teachers. Being a former teacher in second education herself, and a teacher educator currently, she is closely connected to a variety of educational practice in the Netherlands, and to a lesser extent in Belgium. All authors are committed to current ideas about reforming secondary L1 education (in both countries) (Curriculum.nu, 2019; VVSKO, 2014), especially ideas about enrichment of traditional methods with modern linguistic content, and a development towards more attention for a reflective attitude and higher-order reasoning skills about language (language awareness, reflection on language) (Boivin, M.- C., et al., 2018; Chen & Myhill, 2016; Hudson, 2007; Myhill et al., 2013; Myhill, 2016; Myhill, 2021; Ribas et al., 2014). In this research, the principle of co-creation is closely followed by conducting a Lesson Study in a PLC in Belgium. Educational design decisions were mainly made by the teachers, whereas the first author took a more background role as a Knowledgeable Other.

5.3. Results

In section 5.3.1, we describe the central phenomenon of Evaluation 1 and its causal relations, and the revisions (action strategies) employed in the redesign. In section 5.3.2, we describe the central phenomenon of Evaluation 2 and its causal relations, and the revisions (action strategies) employed in the final design. Finally, in section 5.3.3, we present the results of the implementation of this final design.

5.3.1. Evaluation 1

The initial design was tested in a lesson delivered by teacher Charlie (Lesson 1). Seven groups, consisting of a total of 21 students, worked on the assignments. After finishing the box 1 assignment, three groups continued with the box 2 assignment and four groups with the box 4 assignment (see Figure 3).

	Information-gathering	Building understanding	Productive thinking
Pre-reflective	1 7 groups	2 3 groups	3
Quasi-reflective	4 4 groups	5	6
Reflective	7	8	9

Figure 3. Routes through the template in Lesson 1

5.3.1.1. Central phenomenon and causal relations

In the evaluation of the initial design, we found that the PLC members were primarily concerned with the assessment of students' performances in cognitive thinking (the *central phenomenon*). At three different levels in our coding, this assessment became evident. First, we noticed that working with the template in the classroom led to several problems, such as a lack of overview (both content-wise and pedagogically) on the part of the teacher, which made the teacher feel that he was losing control over his students' cognitive performances. Second, the use of Backchannel Chat enabled teachers to capture students' performance in the chat logs. This led the teachers to express doubts about the quality of students' reasoning, which they found disappointing, and about their choices of which assignment to move to next, which they considered unfounded; both of these evaluations elicited doubts about the learning outcomes of Lesson 1. They questioned whether the students were conceptually ready for reflective linguistic thinking. Third, the need for control emerged strongly in this evaluation. The teachers hypothesised that the students needed much more guidance in completing the assignments. In the Backchannel Chat transcripts, they discerned student uncertainty combined with a lack of linguistic knowledge and reasoning, as shown in the following quotation:

Lily: It also means that they really don't know, because otherwise they would initially rely on themselves and say "yes, this is clearly not possible." They really don't know.

The teachers attributed students' poor performance mainly to a lack of teacher control and a lack of support from the teachers. Their main concern was with students' lack of knowledge, which they described as rendering students ill-equipped for independent learning and reflective thinking.

5.3.1.2. Revision of the initial design

Because of the difficulties the teachers experienced in delivering the lesson and in monitoring the students' performances and their choices of next assignment, both of which produced a sense that they had too little control over students' performance, the teachers proposed a number of revisions to the intervention for the redesigned version. These revisions were mainly at the levels of (a) classroom implementation, (b) assignment content, (c) choice of next assignment, and (d) student learning outcomes.

On the level of classroom implementation (a), the teachers proposed a *pedagogical solution*. This action resulted from the observation that teacher Charlie reported experiencing this lesson as hectic. The time pressure was high, meaning that the teacher lost the ability to retain an overview of the content of the assignments, and had difficulty checking the students' answers.

Charlie: The transition from step 1 to the next step, [...] I found that hard [...] it was very quickly like "yeah, is this ok?" I checked the answers roughly [...]. Now I think most groups had done it ok, but there were a few where I thought "Pfff, that's pretty concise." [...] The bigger the assignments get, the harder the control becomes.³

He also noted that if he had delivered this lesson alone, he would not have had a pedagogical overview of the class. The revision the teachers proposed involved appointing a secretary to write down each group's answers to response boxes on the task sheet. This change was intended to offer the teachers more opportunities to assess the students' performances.

On the level of assignment content (b), three action strategies could be identified from the teachers' reflections on the students' reasoning. The first action concerned a simplification of the box 1 assignment as a result of the teachers' doubts about the learning outcomes. They also observed that students had been searching for a correct answer.

Lily: That they very urgently want to know what it is. [...] [Student] 118 also says: "I would like to continue with assignment 2 because then I will learn more about it. Continuing with assignment 4 I still wouldn't know if it is true."

³ Although Charlie noticed that he had a need for criteria on the basis of which to allow students to proceed to the next assignment, this need was not discussed further during this evaluation.

This resulted in a change to the content of the box 1 assignment: instead of presenting a contrast between compound and phrase spelling, a choice was presented between a restaurant menu with correctly spelled items and one with incorrectly spelled items. The teachers expected that this change would lead to a separation between students who knew the rules for AN-compound spelling and those who did not.

The second action strategy concerned the relationships between the assignments. This arose from teachers' observations of the students' reasoning, specifically the fact that the box 1 assignment had generated more discussion than the box 4 assignment, in which students had to make a text without spaces readable by adding spaces. They completed the latter assignment without much discussion.

George: The difficulty is that the assignments we designed are not equivalent. I mean a student can actually do assignment 4 at the level of, do I understand the text or can I read what it says, can I grasp that message. Whereas with that first assignment, you're actually already forcing them to think in two directions, towards rules or terminology, or towards choices [between menus], and depending on how the students then perform [...], you also get a different way of thinking about it.

Another explanation the teachers gave for this outcome was that the box 4 assignment was more familiar to the students because it was a type of assignment that also appears frequently in textbooks. They expected that the proposed revisions to the box 1 assignment would lead to a better distinction between these assignments. The teachers discussed several possible adaptations, but in the end the box 4 assignment was left unchanged in this LS cycle.

On the level of students' choices of next assignment (c), the free choice after the box 1 assignment was replaced with a compulsory route. This action resulted from teachers' doubts about the students' choices of which assignment to do next; these doubts were based on their students' poor motivations for this choice, but also arose from the fact that the teachers were not able to check the students' answers. The teachers wanted students' choice of next assignment to be based on their knowledge of the basic rules.

Charlie: But maybe that one sign is that we need to guide them more with those choices at the bottom of the assignment. [...] You really don't know the basic rule, go to the right. Don't go down.

Bob: Yeah, that they actually made the wrong choices otherwise, well wrong, that they actually could have made better choices.

This revision entailed mandating that students who chose the correctly-spelled restaurant menu must continue with the box 4 assignment, while students who chose the incorrectly-spelled menu must continue with the box 2 assignment. The intended consequence was that students who lacked knowledge of the basic rules would first learn more about the AN-compound spelling rules before being allowed to move to box 3 or 5.

Finally, the teachers wanted students to reflect on their learning outcomes (d) in the chat channel at the end of the lesson because of their doubts about these outcomes. Their doubts were confirmed by the interviews, in which they observed that the students themselves had doubts about what they had learned from this lesson.

Bob: Yes, but if you hear the interviews afterwards, they were all busy with “but yes, what have we learned so far?” That’s important too, isn’t it?

These doubts were strengthened by the quality of students’ reasoning, which was perceived as disappointing. The teachers expressed a need for a formative assessment after the lesson to evaluate cognitive learning outcomes. For the redesign, teachers asked students to write down their learning outcomes at the end of the lesson in the chat channel.

To summarise, as a result of the teachers’ reflections on the initial design, four revisions were carried out to create the redesigned intervention:

1. The restaurant menus presented in the box 1 assignment were revised to present one correctly spelled and one incorrectly spelled menu;
2. Response boxes on the task sheet were added to the assignments;
3. The free choice after completion of the box 1 assignment was changed to a fixed route based on the group’s answer to the final question in that assignment;
4. At the end of the lesson, students were asked to write down their learning outcomes.

5.3.2. Evaluation 2

The redesign was tested in class A delivered by teacher Lily (Lesson 2), which lasted 100 minutes; students’ routes through the template in this lesson are illustrated in Figure 4. Six groups, consisting of a total of 20 students, worked on the assignments. After finishing the box 1 assignment, two groups continued with the box 4 and 5

assignments; two groups continued with the box 4, 5, and 6 assignments; one group continued with the box 4 and 7 assignments; and one group continued with the box 2 and 5 assignments.

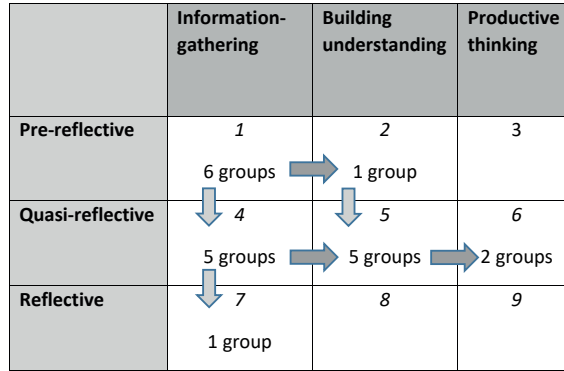


Figure 4. Routes through the template in Lesson 2.

5.3.2.1. Central phenomenon and causal relations

As in Evaluation 1, the assessment of students' cognitive thinking performance was the central phenomenon in Evaluation 2. Teachers focused strongly on (their control over) students' learning. In addition, teachers' reflections on (and partial rejection of) the revisions made in the redesign was another central phenomenon in Evaluation 2. It became evident that this assessment and reflection focused around the same three topics as in Evaluation 1. First, regarding their experience of working with the template, the teachers were positive about the fill-in-the-blanks exercises they had included in the assignments. These exercises helped the teachers to check students' elaboration of the assignments. Second, regarding the content of the chat logs, the teachers concluded that their revisions to the content of the box 1 assignment and abolition of the free choice of which direction to move in after the box 1 assignment had not had the desired effect. The teachers experienced no differentiation between students (see quotation from Lily), nor did they observe improvement in evidence of linguistic knowledge and reasoning compared to the initial design (see quotation from Charlie); the box 1 assignment also no longer provided a challenge to students' thinking (see quotation from Bob).

Lily: Yes, I think we should leave more choice because actually they are not ready for step 4.

Charlie: Okay, the ingredients of all the assignments I think are definitely in order, but I'm just trying to describe when we read here, I notice that you feel

that uh... [...] the reasoning stops and it's not elaborated when it could actually be interesting [...]

*Bob: So I also actually wonder huh, now we have done it very strictly huh?
Gino [Menu 1] is completely right, Daan [Menu 2] is completely wrong. [...] For example, in Charlie's class we would have done it differently. So there were, there were, Gino had a few right [...] and Daan had a few right. There they just started thinking differently, started thinking a little more open minded.*

The tightening of the box 1 assignment (with a choice between a correctly and an incorrectly written restaurant menu) and the imposition of a mandatory route to the next assignment resulted in students completing the box 1 assignment quickly without any discussion or reasoning. The teachers realised that their attempt to gain more control over the lesson had not worked well. Third, regarding the level of need for control, teachers were still looking for a pedagogical solution to gain control over students' performances and learning outcomes.

5.3.2.2. Revisions to the redesign

Revisions to the redesign became apparent on the level of (a) the content of the pedagogical material, (b) learning outcomes, and (c) lesson procedure. On the level of the content of the pedagogical material (a), revisions were formulated to increase the differentiation among students in their routes through the template. In order to get students' thought processes started and improve their reasoning, the teachers suggested asking more questions about AN combinations in the assignments. This would challenge students to think more and more deeply about the issue and to make better arguments and draw better conclusions. On the basis of these observations, two assignments were revised. In the box 1 assignment, the strict contrast between correct and incorrect spellings was removed. In the final design, the contrast between menus with AN-compound spelling and AN-phrase spelling (used in the initial design) was combined with the contrast between menus with correct and incorrect spellings (used in the redesign). This revision was expected to lead to more discussion during the box 1 assignment, which would stimulate students to explore their knowledge of the spelling rules for AN combinations. Furthermore, the teachers added a concluding question to the assignment in which students were required to reflect on the differences between words written with an AN-phrase spelling and those written with an AN-compound spelling. Second, the box 4 assignment was revised. To trigger more discussion during this assignment, the teachers added more AN combinations that could be written using both spellings, depending on the context. The goal of this revision was also to elicit more discussion about the use of these spellings in different contexts.

On the level of learning outcomes (b), two main actions were proposed. The first action was proposed in response to teachers' doubts about the learning outcomes, arising from students' disappointing argumentation and their lack of reasoned conclusions. Teachers observed a lack of any reflective linguistic thinking in students' reasoning. They responded positively when students employed some degree of linguistic reasoning in their chat messages, such as by using relevant terminology, mentioning language change, or drawing comparisons between compounds and phrases (as prompted by the toolbox). However, they concluded that students generally lacked the necessary set of concepts to describe their linguistic thinking and did not have the maturity to think reflectively.

Lily: I think it really has to do with brain connections that they don't all have at that age, could it? I could do that, I know well, I found that very difficult myself in high school still.

This was confirmed by an interviewed student who reported not appreciating the confusion that was created in the assignments in order to trigger reflective thinking.

Student 167: Yes, yes. I find that confusing too because I always want everything so exactly said. It should be such and there it should be so. In some contexts, it was written together and in some not. And there was a formal explanation of why it is written apart...

In the same interview, this student concluded that she did not like doing research because of this confusion.

Student 167: I don't know if it's really my thing, researching or something, because it's confusing... Do you understand? [...] When they do not explain it clearly, I get so confused or something like that.

The teachers discussed alternative pedagogical interventions to establish a better grip on students' learning outcomes and to improve their knowledge, such as an introductory lesson prior to the "template-based lesson," a lesson in which the teacher would go through the box 1 assignment in class with the students, or a classroom moment in which the answers to this first assignment could be discussed once the students had finished it. Despite the intensity of this discussion, it did not result in a revision because the teachers found it difficult to implement one due to developmental differences among the students. Other considerations were that this would only be feasible with respect to the box 1 assignment and that it would be in

contradiction with the design criteria for the template implementation, as specified in the preparation phase. Moreover, some of the teachers also wondered whether such an intervention would be in line with the underlying idea of the template, in which students are challenged to choose their own route:

Bob: Ah well, yeah because without a teacher it is difficult but in fact it would, well, that, if I hear this, to let them do the assignment first, like we do that now, right, everyone has finished with step one and now I go as a teacher, just explain it before the class and show everything, again such a whole intervention, right?

Mary: Controlling, controlling.

The second suggested action concerned the importance of the *choice of which assignment to do next*. The teachers realised that the fixed route after the box 1 assignment did not work. Consequently, they discussed alternative ways to direct students toward assignments that would be in line with their developmental levels in cognitive and reflective thinking.

Charlie: But it's only at the end of the assignment, right? So they're actually going to have been busy for 10, 15 minutes and do have plenty of reflective or non-reflective discussions together and then there's really only one point where you just funnel them through. So I do think that the profit of directing them correctly [...] can mean a lot. Because now, if they end up in the wrong assignment further, they don't gain enough from it either.

The teachers proposed the addition of a multiple-choice test at the end of each assignment in order to direct the students to the next assignment that would be most appropriate to their cognitive and reflective thinking skills.

Lily: A kind of test question of, well, can you now by making the reasoning, are you able to answer that question. If you totally can't, then you shouldn't go to the next step either.

This need for control was prompted by the observation that students lacked motivation for their choice of which assignment to move to next. The teachers also argued that such a test might adjust students' expectations for the assignments and make them realise that more than one answer was possible.

Lily: Suppose they [...] see at those multiple-choice things like okay it's one of the possible answers [...] so it's okay for us to think that way. Because, I think, they still think, we're in school so it's right or wrong.

The goal of this action would be for students only to move on to a new assignment once they have achieved the learning outcome of the previous assignment, and for them to continue with the assignment that represents the best fit for their developmental stage. This would lead to a better route through the template. Another teacher suggested scaffolding students' thinking by setting up the assignments as a kind of teaching–learning conversation.

Charlie: It's actually what we would like in a teaching–learning context, is for those students to build an opinion and for a student to say something and then say "yes but."

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In line with this suggestion, the first and fourth author of this paper proposed an open formulation of the reflection questions, instead of a test question, as a potential way of choosing the next assignment. Specifically, in line with Wijnands et al. (2021), the proposal was to offer the students a choice of whether to proceed with “OK, so...,” to trigger them to continue in a convergent way (to reach a conclusion), or “OK, but...,” to trigger them to continue in a divergent way (to explore alternative sources). This solution was found to address the teachers' concerns. The use of “OK...” implied that the students would be expressing their understanding of the previous assignment, and the second part of the prompt still gave them the opportunity to proceed in their preferred direction. On top of this major revision, the teachers also suggested the use of fill-in-the-blanks exercises as a way for students to account for the motivation behind their choice.

Finally, at the level of lesson procedure (c), two actions became apparent, both arising from the teachers' perceptions of the expectations that the students had. The first action related to *the instructions provided by the teacher at the beginning of the lesson*. The teachers noticed that the students may have had erroneous expectations of this lesson, namely that their objective should be to complete as many assignments as possible and demonstrate their knowledge of AN combinations. The teachers concluded that these erroneous expectations resulted from the absence of a lesson goal provided at the beginning of the lesson. Therefore, the teachers decided that the lesson should begin with a set of instructions in which the teacher would emphasise that the purpose of this lesson was to find out how students think about the issues in the assignments, and not to complete as many assignments as possible or complete

them as quickly as possible. The second action was to *replace the assignment numbers with abbreviations* referring to the phases and stages of reflective and cognitive thinking, as illustrated in Figure 5. The teachers realised that the use of assignment numbers might give the incorrect impression that if students moved from the box 1 assignment to the box 4 assignment, they would be skipping the box 2 and 3 assignments.

To summarise, seven revisions to the design were carried out to produce the final design:

1. The restaurant menus presented in the box 1 assignment were revised to present a combination of the contrast between AN-compound and AN-phrase spelling and the contrast between correct and incorrect spellings;
2. In the box 1 assignment, a concluding question was added to trigger students' cognitive thinking about the difference between AN-compound and AN-phrase spellings;
3. The box 4 assignment was revised to trigger more discussion about the relationship between context and spelling;
4. The fixed route after the box 1 assignment was changed to a free choice;
5. The prompts based on which students would choose their next assignment were revised to present a reflective question ("OK, so..." and "OK, but...") and response boxes in the task sheet were added to capture students' motivations for their choice of next assignment;
6. The instructions provided at the beginning of the lesson were modified to emphasise the purpose of this lesson;
7. The numbers used to refer to each assignment were changed to abbreviations.

5.3.3. Results of the final design

Based on Evaluation 2, it appeared that the teachers were mainly concerned about students' motivations for their choice of which assignment to move to next, students' reasoning, and the learning outcomes of the lessons. The lessons in which the final design were tested (Lessons 3 and 4) were analysed on these three aspects.

In the class delivered by teacher Bob (Lesson 3), five groups, consisting of a total of 16 students, worked on the assignments for 50 minutes. After finishing assignment P-IG, three groups continued with assignment P-BU; one group continued with P-BU and P-PT; and one group continued with Q-IG and Q-BU. In class B delivered by teacher Lily (Lesson 4), seven groups, consisting of a total of 21 students, worked on the assignments for 100 minutes. After finishing assignment P-IG, five groups

continued with assignment P-BU, with one of these groups beginning to work on assignment P-PT afterwards; two groups continued with Q-IG and R-IG. Figure 5 shows the groups' routes through the template during these two lessons.

	Information-gathering	Building understanding	Productive thinking
Pre-reflective	<i>P-IG</i> 12 groups	<i>P-BU</i> 9 groups	<i>P-PT</i> 2 group
Quasi-reflective	<i>Q-IG</i> 3 groups	<i>Q-BU</i> 1 group	<i>Q-PT</i>
Reflective	<i>R-IG</i> 2 groups	<i>R-BU</i>	<i>R-PT</i>

Figure 5. Routes through the final version of the template in Lessons 3 and 4.

Students' motivations for their choices of which assignment to move to next are presented in Table 2. This Table shows that their choices were mainly driven by the (un)certainty and comfort factors. The factor *wonder* being more in line with reflectivity is much less prevalent.

Table 2. Students' motivations for their choice of next assignment in Lessons 3 and 4.

	P-BU	P-PT	Q-IG	Q-BU	R-IG	Total	Examples
$N_{\text{student groups}}$	9	2	3	1	2	12	
(Un)certainty	17	1	3			21	<i>Because we want more clarity on that / P-BU is the base so a better choice</i>
Comfort	9		7		2	18	<i>Easier</i>
Wonder	3	1		2	3	9	<i>We wonder if there is a difference</i>
Other	5	1				6	<i>I don't know / I don't care</i>
Total	34	3	10	2	5	54	

Another revision implemented in the final design was the addition of a concluding question after assignment P-IG. This revision was expected to stimulate students to elaborate on their learning outcomes. Students' answers were analysed for the use of terminology in this assignment. As illustrated in Table 3, linguistic terminology (e.g., "adjective," "compound") was used in 3 out of 6 student groups in the lesson using the redesigned template, while in the lesson using the final design, linguistic

terminology was used in every student group, predominantly in their formulation of an answer to this added question.

Table 3. Use of linguistic terminology in student groups (P-IG assignment) in lessons using the redesign and the final design.

	Use of terminology		Uses of specific terms			
	<i>N</i> _{student groups}	<i>N</i> _{student groups}	<i>Adjective</i>	<i>Noun</i>	<i>Compound</i>	<i>Affix</i>
Redesign	6	3 (50%)	2	1		
Final design	12	12 (100%)	11	8	7	1

Note. The numbers indicate the number of student groups in which linguistic terminology was used.

In total, 35 students responded to the question “How did you experience this lesson?”, providing a total of 56 responses altogether (see Table 4). Students reported both positive and negative experiences. In general, students whose progress ended with the pre-reflective thinking assignment (P-BU) were as likely to report a negative experience as they were a positive experience. However, interestingly, students who moved on toward quasi-reflective (Q-IG) and reflective thinking assignments (R-IG) reported relatively more positive experiences (73%). Furthermore, students who tackled assignments P-BU and Q-IG were likely to report experiencing the lesson as difficult (with nine out of 14 and five out of six students, respectively, giving this response). In contrast, only one student (out of five) whose progress ended with the reflective thinking assignment (R-IG) reported having experienced the lesson as difficult.

Table 4. Characterizations of students’ answers to the question “How did you experience this lesson?”

Experience of the lesson	Ended with assignment			Total
	P-BU	Q-IG	R-IG	
Positive	10	6	5	21
Negative	10	1	3	14
Difficult	14	6	1	21
Total reactions	34	13	9	56

Finally, 23 students answered the question “What have you learned from this lesson?” These answers were analysed for references to linguistic concepts or terminology, as well as for reference to the role of contexts (or sources) in evaluating the spelling

of AN combinations (see Table 5). In ten responses, no linguistic terminology was mentioned nor was there any reference to a source. In nine responses, linguistic terminology (such as “meaning,” “adjective,” or “compound”) was employed, but no mention was made of sources. Finally, four reactions referred to a source, such as context or language intuitions. Interestingly, students who gave these answers were all from groups who had ended the lesson with assignments involving more reflective thinking that had required them to compare sources. No responses referred to both linguistic terminology and use of sources.

Table 5. Categorization of students' self-reported learning outcomes ($n_{\text{learning outcomes}} = 23$) in response to the question “What have you learned from this lesson?”

No linguistic terminology	
10	4
<i>The response uses no linguistic terminology and does not refer to any sources</i> Ended with assignment P-BU: 7 Ended with assignment Q-IG: 2 Ended with assignment R-IG: 1	<i>The response refers to some source, such as context or language intuition, but does not use any linguistic terminology</i> Ended with assignment Q-IG: 1 Ended with assignment R-IG: 3
9	--
<i>The response contains use of linguistic terminology, such as “meaning,” “adjective,” or “compound,” but does not refer to any sources</i> Ended with assignment P-BU: 7 Ended with assignment Q-IG: 2	<i>The response uses linguistic terminology and refers to sources</i>
Linguistic terminology	

5.4. Discussion

In this study, we investigated how teachers experienced the implementation of a pedagogical template for stimulating cognitive and reflective thinking in the classroom (Wijnands et al., 2021) and redesigned the template-based intervention based on their experiences. In doing so, we examined how teachers responded to students' performances in lessons in which the initial design (sub-question 1) and the redesign (sub-question 2) were implemented. We also examined students' behaviour in lessons in which the final design was implemented (sub-question 3).

5.4.1. Interpretation of the main findings

The first sub-question concerned how teachers reacted to students' performances in the first lesson in which the intervention was implemented in the classroom (initial design). From the analysis, it appeared that the teachers were mainly focused on their students' performances in cognitive thinking. Moreover, the teachers expressed the need for greater control over their students' performances. This need led to the revision of assignment P-IG in such a way as to only enable students to continue with assignments targeting a higher level of reflective thinking when they could distinguish correctly-written AN combinations from incorrectly-written ones.

In order to answer the second sub-question, the teachers' responses to students' performances in a lesson implementing the redesign were analysed. It appeared that the teachers were still focusing on their students' performances in cognitive thinking. However, they realised that the revision of the materials used in the first assignment to present a strict dichotomy between right and wrong had not had the desired effect. Their need for control shifted from the content of the assignments to the students' motivations for their choices of next assignment. In the corresponding evaluation session, the teachers discussed the option of using a multiple-choice question to direct students to assignments that would represent the best fit for their level of linguistic development. The teachers maintained that the students were not mature enough for reflective linguistic thinking and that more scaffolding was needed than had been offered in the toolbox and as part of the assignments. Ultimately, a reflection questions at the end of each assignment was formulated, using the wording: "OK, but..." and "OK, so...." The aim of this revision was to guide students who had not yet mastered the spelling rules toward choosing a convergent route and only encourage students who had mastered these rules to choose a divergent route. This revision met the teachers' need for control.

In order to answer the third sub-question, students' performances in the lesson implementing the final design of the template were analysed, focusing on the students' motivations in choosing their next assignment, the effect of posing a concluding question as part of assignment P-IG, and the students' self-reports on their experience of the lesson and their learning outcomes.

Students' motivations in choosing their next assignment in this lesson (using the final design) could be classified mainly into those relating to (un)certainity and those relating to comfort. Some students' choices were also motivated by wonder, which could be compatible with an indication of more reflective thinking, since wonder implies curiosity about additional perspectives (Rodgers, 2002). An interesting

follow-up question would be to explore whether students with more nuanced reflective, epistemic beliefs motivate their choices more often on the basis of wonder, while students with more naïve pre-reflective, epistemic beliefs motivate their choices more often on the basis of (un)certainly and comfort. A similar question can be formulated based on students' responses to the question "How did you experience the lesson?". We found that students who had only worked on assignments associated with the pre-reflective and quasi-reflective thinking levels had experienced the lesson as being more difficult than students who had progressed to the reflective thinking level. It could be that the latter group of students were more developed in terms of reflective thinking and were less troubled by the uncertainty elicited by the assignments. Future research could explore whether students who ended the lesson with assignments targeting the reflective thinking stage also hold more nuanced epistemic beliefs.

In the final design, students used more subject-specific terminology during assignment P-IG than they did in the redesign. It should be emphasised that no terminology was provided as part of the materials for assignment P-IG either in the redesign or in the final design. Although it is difficult to make a direct comparison between implementations, because these were conducted with different classes, this difference in use of terminology could be explained by the addition of a concluding question within the assignment itself. This increase in students' use of relevant terminology is promising, because this has been shown to be a good predictor of better linguistic reasoning (see, for example, Van Rijt, De Swart, et al., 2019). Because of the teachers' focus on cognitive thinking performance, no question with an explicit focus on reflective learning (such as "How did you arrive at this knowledge?") was added to assignment P-IG. Such a reflective question might stimulate students to also express more epistemic ideas, such as the importance of investigating multiple sources or comparing different contexts. Future research could investigate the effects of adding such reflective questions.

The question "What have you learned from this lesson?" generated three types of responses. Responses that neither made use of linguistic terminology nor mentioned any sources of knowledge were the most likely response to make reference to the difficulty of the assignments or the Dutch language. Responses that only made use of linguistic terminology were mainly reproductions of the toolbox explanations, such as "I learned that you can use the diminutive form to determine if you can write a word together or not." Responses citing sources included only primary sources, such as context and language intuitions (cf. Dielemans & Coppen, 2020), even if students had consulted secondary sources in the course of completing the assignments. The

use of sources might be an indication that students realise that linguistic knowledge is not dictated by a single authority or source but can emerge from the comparison of different sources (King & Kitchener, 1994).

To summarise, from the analysis of the evaluation of the redesign it can be concluded that the assignments succeeded in eliciting the uncertainty and discomfort that are expected to be important for the development of reflective thinking. In addition, the mention of primary sources by students who worked on (quasi-)reflective thinking assignments might indicate some level of reflectivity.

Returning to the research question of this study, we conclude that, on the one hand, teachers have a strong need for control and their focus on performance in cognitive thinking predominates; on the other hand, they also recognise that assignments need to create doubt if they are to trigger development in students' epistemic beliefs. The students' performances provide evidence that cognitive friction causes epistemic doubt, which might be a trigger for the development of reflective thinking. Thus, the template seems to be a useful instrument for development of this mode of thinking.

Interestingly, the aforementioned doubt elicited in students is exactly the factor that also elicits the need for control among teachers. This finding is consistent with previous research (e.g., Reeve, 2009; Philips & Borg, 2009; Wansink et al., 2016) showing that contextual factors, such as classroom management or student expectations, trigger a control mode in teachers. Even though the teachers who participated in the present study designed the assignments and toolbox in such way that the students would be able to complete them autonomously, the teachers still felt the need for a more controlling teaching style during their implementation of the lesson based on the template. They could not scaffold students' conversations in a manner that was supportive of the students' autonomy, due to the use of Backchannel Chat and the hectic classroom management demands of checking students' work and handing out assignments.

This study reveals that teachers are mainly focused on students' performance in cognitive thinking. This focus on cognitive performance is in line with results from other studies in, for example, the history domain (e.g., Maggioni, 2010; Havekes et al., 2016) and the language domain (e.g., Van de Broek, 2020). Studies on language awareness show that teachers have a strong focus on content and procedural knowledge (e.g., Camps, 2014; Boivin, 2016; Fontich, 2014; Fontich & García-Folgado, 2018). According to these studies, guiding students in cognitive thinking, especially through the provision of terminology or reasoning (a process referred to as *reflection*

on language), is of great importance in the development of linguistic reasoning. An interesting finding of this study was that this focus on cognitive performance seemed to affect teachers' perceptions of even the very concept of reflective thinking. The teachers seem to interpret "reflective thinking" as referring more to this aforementioned "reflection on language" process, rather than also involving epistemic beliefs.

To improve students' linguistic reasoning, the teachers indicated that they wanted to teach students how to use linguistic terminology and reason about linguistic issues. However, students might perceive this input as further fixed knowledge offered by the teacher, while in order to develop their reflective thinking, students should discover for themselves that knowledge is not fixed or offered by an authority (King & Kitchener, 1994). A phase of uncertainty is a necessary step in prompting them to develop their reflective thinking about language. Cognitive friction is necessary for this development, because it challenges students to use relevant terminology to make sense of their observations and to consider additional contexts to discover that there is no single correct solution. In the analysis of the lesson in which the final design of the template-based intervention was implemented, we observed tentative signs of this development.

5.4.2. Study limitations and future research

This study is not without limitations. It describes the first time we tested Wijnands et al.'s (2021) template in practice and we can make a number of recommendations for subsequent implementations.

An important limitation is the influence of current learning culture in secondary education in general, in which the emphasis is on giving the right answers and reproducing previously learned knowledge. This was clearly visible in this study. The teachers noted in Evaluation 2 that the students not only completed the assignments quickly but were also consistently searching for correct solutions. Therefore, in the final iteration of the design, the teachers decided that the instructions provided at the beginning of the lesson should emphasise that the goal was not to complete as many assignments as possible or to find the right answer, but rather to explore their ways of thinking about these language issues. Although the teachers emphasised the importance of this instruction, we noticed during the evaluations that the teachers were also influenced by the school context, as seen in their focus on students' performance in cognitive thinking and their understanding of reflective thinking.

Moreover, more research is needed on teachers' understanding of reflective thinking. The current study clearly showed that teachers repeatedly persisted in focusing on cognitive thinking, despite having set out to improve students' reflective thinking. This suggests that the teachers in fact conceived of reflective thinking about language as just "thinking about language," and thus essentially as a form of cognitive thinking. Reflective thinking, however, should involve a more nuanced form of thought, which is about approaching linguistic problems from different perspectives, guided by underlying epistemic beliefs. These interpretations seemed to influence teachers' behaviour during the lessons (see also Van Rijt, 2020). Further insight into teachers' understanding of reflective thinking would provide pedagogical guidance on how teachers can support students. This guidance may transform the teachers' need for control into the delivery of teaching that would be more supportive of students' autonomy.

A final question is to what extent the use of the digital tool Backchannel Chat influenced the results. The teachers indicated that although this tool provided them with good insight into students' thinking processes afterwards, they were unable to properly carry out their supportive role during the lessons themselves due to time-consuming activities associated with the use of this tool, such as checking answers and handing out new assignments. In follow-up research, digital conversation tools will need to be used in such a way as to enable teachers to monitor students' discussions during this process so that they can provide support to students as needed.

The key question remains how we can foster the development of reflective thinking about language issues in students. We believe that the use of sources plays an important role in this development. A follow-up study could focus on how the template presented here can trigger and scaffold students' reflections on multiple sources and epistemic questions.

5.5. Conclusion

The present study has shown that the main issue in the delivery of lessons on reflective thinking is finding a balance between students' uncertainty and the teacher's need for control. Assignments for use in such lessons will have to be formulated in such a way as to provide students with sufficient space to think about the issue for themselves, and the reflective questions will need to be formulated in such a way as to allow students to make an informed choice on the assignment they tackle next. This would create space for the teacher to scaffold students in their investigation of

the language issue, by allowing them to come up with questions but also giving them the opportunity to investigate the issue themselves (Reeve, 2009). When language issues elicit curiosity in students, not only will they be more motivated to work on the assignments (Reeve, 2009), but such language issues might also trigger and foster their reflective thinking.



Chapter 6

Bringing conflicting sources into the classroom. Eliciting and scaffolding reflective thinking in Dutch L1 linguistic education

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Abstract

Consulting linguistic sources is not a compulsory part of grammar curricula in the Netherlands. This is a missed opportunity, because these sources confront students with variations in language reality, and not just with prescriptive language rules. These variations are expected to stimulate students to evaluate language from different perspectives. This article presents two studies that explored how pre-university students (11th grade) reason with linguistic sources. In an exploratory study, students (N = 41; M age 16.2 years) were presented with authentic linguistic sources. The results show that these sources do not spontaneously elicit reflective thinking. Students consult sources in an authoritative or convergent way to find the right answer. Fragments coded as divergent reasoning primarily revealed confusion and did not stimulate exploring multiple perspectives. In a subsequent experimental study, we examined what kind of scaffolding is needed for students (N = 120; M age 16.2 years) to become more proficient in reflective thinking about conflicting linguistic sources. This study shows that strategic scaffolding supports students to integrate linguistic reasoning when substantiating a position on a language issue. In addition, meta-strategic scaffolding leads to decreases in authoritative reasoning. This study shows that scaffolding students' (meta-)strategic reasoning germinates reflective thinking about language.

6.1 Introduction

Teaching students to consult linguistic sources, such as language corpora, language advice works, reference grammars and popular scientific publications, is not an obligatory part of the traditional grammar curriculum in Dutch secondary education. This is a missed opportunity, because these sources are hypothesised to give students a better understanding of the complexity of language (Coppen, 2013; Wijnands et al., 2021), which is an important topic in current discussions about grammar education (Boivin et al., 2018; Rättyä et al., 2019; Ribas et al., 2014; Van Rijt, 2020). However, in secondary grammar education, there seems to be a compelling attention to the correct form. Writing or speaking without grammatical errors is one of the main objectives of the secondary educational curriculum in many countries (e.g., for Australia: ACARA (n.d.); Belgium: VVSK (2014); Norway: Utdanningsdirektoratet (2019); the Netherlands: Werkgroep Taal (2009); United Kingdom: DfE (2014)).

This focus on grammatical correctness is traditionally associated with lower-order thinking exercises, where a fixed strategy leads to only one correct answer (Honda & O'Neil, 2008; Milroy & Milroy, 1999; Van Rijt, 2020; Van Rijt & Coppen, 2021). This approach, aimed at teaching students to apply prescriptive language rules, does not promote a better understanding of how language works, and it does not help students make conscious choices in language use (Myhill, 2016; Chen & Myhill, 2016; Myhill, 2021). To increase their language awareness (see ALA, n.d.), students need to learn to reason about language issues (Coppen, 2011b; Dielemans & Coppen, 2020, Van Rijt, 2024; Van Rijt et al., 2023). This calls for more reflective thinking (Hofer, 2002; Hofer & Pintrich, 1997; Lipman, 2003; Wijnands et al., 2021). Research in domains other than the grammar domain shows that this kind of thinking can be stimulated mainly by confronting students with ill-structured problems and exploring these from different perspectives, with multiple sources (Barzilai & Ka'adan, 2017; Bendixen, 2002; Bendixen & Rule, 2004; Kienhues et al., 2016; King & Kitchener, 1994, 2002; Stoel et al., 2022). An increasing number of researchers suggest that this pedagogy should be applied in grammar education as well (Coppen, 2011b; Dielemans & Coppen, 2020; Jansen et al., 2019; Van Rijt & Wijnands, 2017; Wijnands et al., 2021). This chapter aims to explore what is needed to support students' reasoning about language problems using multiple sources.

Studies on reflective thinking often focus on the transition between a novice level and an expert level (Hofer & Pintrich, 1997; King & Kitchener, 1994; Kuhn, 1991). Inspired by the Reflective Judgement Theory (King & Kitchener, 1994), Coppen (2013) and Wijnands et al. (2021) label this development of students' reflective thinking

in linguistic education along three levels, starting with a stage of pre-reflective thinking, followed by a stage of quasi-reflective thinking and ending up with a stage of reflective thinking. Each level of reflective thinking is underpinned by specific epistemic beliefs about the nature of knowledge and knowing (Hofer, 2016), which influences information processing (Chinn et al., 2014). These epistemic beliefs are theorised to influence how people perform when consulting linguistic sources (Wijnands et al., 2021). At the pre-reflective level, knowledge is seen as absolute and justified by authority. When confronted with a linguistic problem, such as the use of dangling modifiers (see Pinker, 2014; Wijnands et al., 2021), pre-reflective thinkers look for one prescriptive rule, or engage in some form of reasoning aimed at finding the one true solution in prescriptive and descriptive sources. At the intermediate quasi-reflective level, knowledge is only considered to be subjective. Quasi-reflective thinkers are aware of the fact that multiple answers coexist. However, they lack criteria to discern lay opinions from expert opinions. Consequently, when confronted with coexisting varieties in language reality or with a linguistic problem with multiple solutions, they might express confusion and uncertainty. Quasi-reflective thinkers might reason that anything goes, or they formulate a rule that is supposed to be true in all contexts. At the reflective level, finally, thinkers have developed evaluative skills that enable them to use conflicting sources in constructing informed positions (Kienhues et al., 2016). They view knowledge as a relative truth, the best choice in a given context and justified by contextual considerations. They tend to use linguistic sources to reason about the tensions between prescriptive language rules, language reality and individual language intuitions. These thinkers are open to differences regarding meaning, context, language variation, language change, etc., and can reason about language issues accordingly.

Using linguistic sources seems to be a good way to stimulate a more reflective thinking about language. It can help students in exploring tensions between prescriptive language rules, language reality and their own language intuitions (Coppen, 2011b; Van Rijt & Wijnands, 2017; Wijnands et al., 2021, Wijnands, Van Rijt, Stoel et al., 2022). From these sources, students may discover that prescriptive language rules often differ from their own language intuitions or language reality and that this might not be a question of incorrect language use, but, for instance, a matter of language variation, language change, or a conscious choice in language use. The nature of students' reasoning reflects their level of reflective thinking. Following Dielemans and Coppen (2020), Van Drie and Van Boxtel (2008), and Van Rijt et al. (2023), we define reasoning about language as an activity based on analysis of linguistic sources in which a person conceptualises information about language phenomena to describe, compare and/or evaluate linguistic phenomena

from different perspectives supported by linguistic arguments. This calls for more divergent than convergent thinking (Wijnands et al., 2022).

In research on grammar education, two types of linguistic sources can be distinguished: primary and secondary sources (Dielemans & Coppen, 2020). Primary sources consist of individual language intuitions and language reality. Language intuitions can be consulted by introspection and discussing specific issues with peers (thereby mapping out differences in language intuitions). Language reality can be explored by searching and counting in language corpora, like newspaper archives or the internet. Secondary sources are publications about language. These sources describe or discuss prescriptive or descriptive language rules. Examples are dictionaries, grammars, language advice websites, or popular scientific publications. The difference between prescriptive and descriptive sources seems obvious, but in educational practice, the latter are hardly used (Coppen, 2013; Wijnands, 2016), and in any case, even descriptive sources tend to be interpreted by a general audience as prescription (see Coleman et al., 2023, par. 2.2; Quirk et al., 2008, p. 33).

In this Chapter, two studies are presented that explore the effects of source consultation on students' reflective thinking and reasoning skills. In a small-scale qualitative study, we explored students' spontaneous reasoning when they were confronted with *authentic* linguistic sources. In a second, more large-scale, experimental follow-up study, we examined how different types of scaffolding support students to become more proficient in reasoning about *conflicting* linguistic sources.

6.2 Study 1

In this exploratory study, we investigated how Dutch-speaking 11th grade students respond to different types of authentic (primary and secondary) linguistic sources and to what extent this elicits some form of reflective thinking. In Chapter 4 (Wijnands, Van Rijt, Stoel et al., 2022), we observed that students consulted different linguistic sources when working on assignments on (quasi-)reflective levels, but we did not analyse how students were engaged in reflective thinking. That is why our main interest in this exploratory study was to explore to what extent students engage in reflective thinking when consulting those authentic sources. Therefore, we formulated two research questions:

- 1) Which aspects of reflective thinking can be observed in students' reasoning when consulting authentic linguistic sources?
- 2) Which differences in reflective thinking can be observed in students' reasoning when consulting authentic primary sources compared to consulting authentic secondary sources?

6.3 Method

The data for study 1 draws on a subset of data from a larger project, in which the method of Lesson Study was conducted in a Belgian Professional Learning Committee (PLC) (see Wijnands, Van Rijt, Stoel et al., 2022 and Chapter 5) and a Dutch PLC (see Wijnands & Echten, 2019). For this larger project, the teachers and students had signed a consent form stating that their data could be anonymously used for scientific research. This project was approved by the ethics committee of the Radboud University in Nijmegen, under reference number 18U.019822. The larger project was performed from January 2019 until April 2019 in Belgium, and in March and April 2019 in the Netherlands.

6.3.1 Data collection and analysis

In the larger project, 41 students from the 11th-grade participated (mean age = 16.2 years): 35 students from Belgium and 6 students from the Netherlands. The Belgian students were from three different classes (2 teachers), the Dutch students from the same class. In each class, students worked in groups of three on two different ill-structured linguistic problems during two lessons. Members of each group were seated back-to-back and group discussion was conducted through the educational discussion tool *BackchannelChat* so that the discussions between students could be captured. The lessons in the Netherlands lasted 45-50 minutes, in Belgium 50 or 100 minutes, reflecting the actual duration of regular class hours in both countries.

Students consulted authentic primary and secondary sources in the assignments (see for an example Appendix G). We used the newspaper corpus Delpher as a primary source for investigating language reality. This corpus consists of more than 2 million newspapers from the Dutch language area from 1618 to 1995. In addition, we used several major news websites (e.g. vrt.be, hln.be, and nos.nl) to investigate language reality of language today. As secondary sources we used an online dictionary (Woordenlijst.org), language advice websites (onzetaal.nl, Taaladviesdienst.nl), a Dutch reference grammar (ANS), and a popular column (Spatiegebruik.nl). These

secondary sources do not only show *prescriptive* language rules but also provide a nuanced *description* of language variety. According to the teachers, students were familiar with the online dictionary, language advice websites, and news websites.

In this study, we analysed the segments of the discussions in *BackchannelChat*, where students discussed authentic linguistic sources (hereafter: key fragments). In total, we analysed 22 key fragments divided over 16 discussion groups in vivo, and using the constant comparison method the codes were clustered in overarching groups (cf. Corbin & Strauss, 2015). During coding we defined three inductive codes that we could relate to the different levels of reflective thinking. These codes were 'authoritative reasoning', 'convergent reasoning', and 'divergent reasoning', which could be connected to the pre- and quasi-reflective thinking levels. A key fragment possibly contained several of these codes. We also looked for examples of linguistic reasoning that could indicate nuanced reflective thinking. However, these instances were not found.

In line with our second question, we explored whether students' reasoning differed when consulting authentic primary sources compared to consulting authentic secondary sources.

6.4 Results

6.4.1 Aspects of reflective thinking

In the key fragments, we categorised students' reasoning in 11 activity types (see Table 1). Subsequently, these activity types were synthesised into three overarching reasoning types: 'Authoritative reasoning', 'Convergent reasoning', and 'Divergent reasoning'. We found 12 instances of 'Authoritative reasoning' in 12 key fragments. In these fragments, students regarded linguistic sources as merely prescriptive. We found 46 instances of 'Convergent reasoning' occurred in 20 key fragments. Herein we discerned two main activity types: *Explaining differences* (14 instances) and *Confirming previous result* (12 instances). The activity *Explaining differences* concerned students' explanation for the differences found in the sources (see Appendix H for a detailed overview). The activity type *Confirming previous result* concerned students' search for confirmation in the linguistic source of what they had discovered previously in the assignment. We found 23 instances of 'Divergent reasoning' in 14 key fragments. Two activity types were observed: *Observing both forms* (14 instances) when students observed that the linguistic issue has multiple solutions; and *Expressing confusion/doubt* (9 instances) when students got stuck in confusion or doubt.

Table 1. Overview of the types of reasoning, related to the types of activities, and typical examples from the data

Reasoning type	Activity type	Typical example from the data	N
Authoritative reasoning	Searching prescriptive language rule	<i>yes but just search [...] on 1 of those websites how it should really be written and why</i>	12
Convergent reasoning	Explaining difference	<i>So, I simply write 'in the previous century it was mainly written separately and now only/mainly as one word</i>	14
	Confirming previous result	<i>In question 5, that's what we said before</i>	12
	Finding confirmation for one form	<i>Yes in newspapers it is just written as separate words</i>	7
	Counting / Generating graph	<i>When I looked that up I find 971 newspaper articles where it's written as one word and 10,303 where it's written separately</i>	6
	Evaluating search result uncritically	<i>I found 'There are books the author wrote for himself...' and 'There are thirteen snakes'. Books is countable and indefinite and snakes is countable (it even says how many there are) and also indefinite¹</i>	5
	Adjusting previously formulated rule	<i>OK, but then I write down that previous example and write that our rule is wrong. It must be countable</i>	2
Divergent reasoning	Characterising advice as clear	<i>I think the advice was clear</i>	1
	Finding both forms	<i>it also said that sometimes the words are written separately</i>	14
	Expressing confusion / doubt	<i>I think the advice is actually a bit vague. But it is vague because it says you should actually use plural too</i>	9

6.4.2 Difference between consulting language reality and secondary sources

Table 2 presents an overview of the types of reasoning occurring when students consulted primary or secondary sources. When consulting primary sources students predominantly used 'convergent reasoning', although nine instances of 'divergent reasoning' were also found. 'Divergent reasoning' occurred when students observed

^{1.} While the assignment is about coordinated subjects, students reasoned about examples with simple subjects found in Delpher. This might be due to the assignment. Although the assignment is about coordinated subjects, this part of the assignment does not explicitly refer to coordinated subjects, but to sentences starting with 'there is...' and 'there are...'.

that multiple variants were possible. However, instead of reasoning with these variants, students immediately converged on one correct solution ('convergent reasoning') which meant that students looked for a prescriptive rule, confirmed a rule formulated in previous assignments, or counted how often the variants occur; therewith providing a fixed explanation for the variation.

When consulting secondary sources, students made equal use of 'Authoritative reasoning', 'Convergent reasoning', and 'Divergent reasoning'. 'Authoritative reasoning' occurred when students searched for the prescriptive language rule in the secondary sources (*Search prescriptive language rule*) and adopted the rule found. 'Convergent reasoning' occurred when students sought a rule to explain the variation found or a confirmation of the rule they have formulated in a previous assignment, considering those secondary sources as prescriptive ones. 'Divergent reasoning' occurred when students did pay attention to the fact that in addition to a prescriptive rule another variant was also acceptable. This resulted in confusion or doubt, because they realised that their strategy of choosing the prescriptive rule was failing. In six student groups students subsequently tried to solve their confusion by coming up with an 'convergent' explanation (*Explaining difference*).

Table 2. Overview of the type of reasoning when consulting primary and secondary source.

		Primary sources		Secondary sources	
Consulted by		16 groups		14 groups	
Reasoning types	Activity types				
Authoritative reasoning	Searching prescriptive language rule			12	
Convergent reasoning	Confirming previous result	8	} 34	4	} 13
	Explaining difference	8		6	
	Counting / Generating graph	6			
	Finding confirmation for one form	5		2	
	Evaluating search result uncritically	5			
	Adjusting previously formulated rule	2			
	Characterising advice as clear			1	
Divergent reasoning	Confusion / Doubt	2	} 9	7	} 14
	Finding both forms	7		7	

6.5 Discussion

This small-scale study aimed to explore which aspects of reflective thinking can be observed in students' reasoning when consulting authentic linguistic sources. Results showed that students' reasoning could be categorised as authoritative, convergent, and divergent when consulting these sources. We observed only one activity as a form of authoritative reasoning, which is not remarkable, since this type of reasoning only aims to obtain certain knowledge from experts (Hofer & Pintrich, 1997; King & Kitchener, 1994; Kuhn, 1991). This authoritative reasoning is considered in the reflective judgment theory by King and Kitchener (1994) as a low level of pre-reflective thinking. In our results, students show much more activities that could be labelled as convergent reasoning. All observed activities aimed at finding the one true solution and can therefore be considered as a more advanced level of pre-reflective thinking than authoritative reasoning (King & Kitchener, 1994). Finally, we coded 23 fragments as 'divergent reasoning'. In these fragments, students notice that different variants are accepted in the sources, and this leads to confusion. Students seemed unable to reason in scenarios where multiple solutions were conceivable. They did not show any attempt to examine the underpinnings of the different solutions. Instead, they tended to subsequently pick and justify one 'true' solution convergently. This finding aligns with those of Stadtler and Bromme (2014), who pointed to the urge of readers to restore or reconcile conflicting information. In terms of King and Kitchener (1994), this divergent reasoning can be seen as a first sign of a transition to quasi-reflective thinking, since students acknowledge the linguistic problem but lack criteria to evaluate multiple perspectives.

With our second research question, we looked at whether there were differences in students' reflective reasoning when consulting authentic primary sources and authentic secondary sources. When consulting primary sources, there is no authoritative rule for students to refer to, because these sources just show multiple language variants. Although some students notice these different variants, these sources mainly elicited convergent reasoning. Students searched for the most common variant, for which they then provided an explanation, or they looked for confirmation of their previous reasoning. In contrast, when students consulted secondary sources, their reasoning was authoritative and convergent, as well as divergent. Students mainly consulted language advice, as they are used to, as a prescriptive source to find a fixed answer to a language issue. When students discover that this apparently prescriptive source also approves a second variant in language reality, some form of divergent reasoning starts. However, instead of then describing, comparing or evaluating different perspectives, students become

confused, their divergent reasoning stops immediately and they come up with a convergent explanation.

Returning to our main question, the extent to which students engage in reflective thinking when consulting authentic linguistic sources, we can conclude that in this study authentic sources mostly trigger pre-reflective thinking as indicated by authoritative and convergent reasoning. Although secondary sources seem to stimulate some quasi-reflective thinking, indicated by divergent reasoning, this thinking is hampered immediately. The doubt students experience does not encourage them to develop their reflective thinking further. This observation echoes that of Bendixen and Rule (2004), who noticed that doubt, as one of the components of reflective thinking development, does not guarantee development. It may even cause students to revert to a previous level of reflective thinking.

An explanation of the absence of development in this study may be that the authentic sources do not explicitly advocate an official or natural variant, but often merely contrast a 'strict rule' and an optional lenience to accept variation. Consequently, the prescribed variant is not rejected by any of the sources. Choosing the prescribed variant is therefore a safe option. Students do not feel a necessity to reason about the tension between language rules and language reality, and they are not encouraged to develop their reflective thinking about language.

To trigger students' reflective thinking, it might be better to confront students with conflicting sources that explicitly approve and disapprove of different variants. By doing so, the conflicting information is explicitly presented from different perspectives (Stadtler & Bromme, 2014). Moreover, there is no safe option, since each variant is disapproved by one of the sources. This might stimulate students' openness to considering the disputed natural variants in the language reality. This explicit way of presenting conflicting or divergent information might be an impetus for students' reflective thinking development (Ferguson et al., 2012; Kienshues et al., 2016).

This exploratory study had several limitations. First, it was a small study, the outcomes of which might not be representative of 11th graders in general. Second, two of the three assignments were about spelling. This topic might inhibit students' reflective thinking more than a grammar topic because of the focus on error-free spelling in education. Third, the ICT tool *BackchannelChat* made it impossible for the teachers to coach the discussion, as students worked on the tasks in silence, and the teachers could not follow the discussions.

Based on these outcomes, we decided to conduct a follow-up study, which aimed to scaffold and foster students' *reasoning* about linguistic sources, not only in the assignments and scaffolds but also in construction of the sources. Furthermore, in this follow-up study students would be confronted with language issues in which right or wrong is not that prominent as it is in spelling issues. This might make them less likely to resort directly to the prescribed rules and examine the issue from other perspectives as well.

6.6 Study 2

Our aim of study 2 is to find out whether scaffolding can support students' reflective thinking indicated by a higher level of linguistic reasoning, when consulting conflicting sources about language issues. One of the recommendations from study 1 was to use conflicting sources instead of strict and lenient sources, or even leniency within one source. These conflicting sources might create a cognitive conflict that requires more reflective thinking (Ferguson et al., 2012; Kienhues et al., 2016). We expect that with the exception of pre-reflective thinkers who stick to the prescribed language rules, this might also stimulate students to engage in more (quasi-)reflective thinking. This thinking translates ideally into reasoning about or even evaluating their own language intuitions, language reality, and the prescriptive language rules underpinned by linguistic arguments.

However, students encounter problems when consulting conflicting sources, as Barzilai and Ka'adan (2017, p. 197) point out. The first problem is that students have difficulties relating information from multiple texts, as seen in Study 1. They do not notice inconsistencies between different texts, and when they do notice them, they do not resolve them, or they tend to resolve them by reconciling conflicting information (Stadtler & Bromme, 2014). The second problem relates to students' lack of overview when reading different texts. They lack the skills to properly identify what they already know and what information the texts offer them, and to organise the claims and justifications in argument schemes (Britt & Rouet, 2012). Both problems require structured scaffolding (Barzilai & Ka'adan, 2017; Barzilai, et al., 2020; Bråten et al., 2013; Wineburg, 1991).

Barzilai and Ka'adan (2017), in their study with 9th grade students, distinguished two types of scaffolding: strategic scaffolding and meta-strategic scaffolding. Strategic scaffolding involves the ability to visualise information about and from different sources in one graphic organiser. This organiser also supported students to relate this

information between sources. This strategic scaffolding enabled students to better explore the reliability, validity, and information of each source, within and between sources. They concluded that this strategic scaffolding helped students reduce lower-order cognitive demands in order to pay attention to higher-order demands such as comparison and evaluation. According to Barzilai and Ka'adan (2017, p. 194), meta-strategic scaffolding involves 'explicit knowledge of epistemic strategies for evaluating and reconciling divergent accounts'. They hypothesised that students' ability to integrate divergent information will increase when they understand *why*, *how*, and *when* strategic scaffolding is needed. It was found that one lesson on meta-strategic scaffolding helped students become aware of the importance of strategic scaffolding (see also Zohar, 2012).

In our study in the language domain and on secondary school level, we expect that strategic scaffolding can also support students' reflective thinking when confronted with conflicting information about language issues. By making the information visual in a strategic organiser (see Appendix I), students will arguably become more aware of different perspectives on how language issues can be viewed and the linguistic arguments that justify those perspectives. It enables them to compare, relate, and evaluate conflicting views and justifications. This could make them realise that multiple answers on a language issue may coexist, each underpinned by more or less valid linguistic arguments, which could trigger their reflective thinking. We also expect that meta-strategic scaffolding in an explicit lesson on *why*, *when*, and *how* to deal with conflicting information on language issues will further stimulate students' reflective thinking. This scaffolding makes students aware that language can be viewed from more perspectives than the prescribed language rules taught at school. They also become aware that these perspectives often contradict each other, and they develop skills how to reason about these different views. In other words, they discover the evaluative reflective thinking skills that enable them to handle conflicting information about a language issue.

Based on these expectations, we have formulated the main research question of Study 2 as follows: *To what extent do strategic and meta-strategic scaffolding stimulate students' reflective thinking as observed in students' reasoning, when being confronted with conflicting sources about a language issue?* To answer this question, we confronted students with conflicting sources about a language issue in three different conditions: a no scaffolding condition (NSC), a strategic scaffolding condition (SSC), and a meta-strategic scaffolding condition (MSC). We formulated the following hypotheses:

Hypothesis 1: Compared to students in the no-scaffolding condition (NSC students), students in the strategic scaffolding condition (SSC students) a) use less authoritative reasoning; b) reason more with language intuition and reality, and c) use more linguistic arguments.

Hypothesis 2: Compared to SSC students, students in the meta-strategic scaffolding condition (MSC students) a) use less authoritative reasoning; b) reason more with language intuition and reality, and c) use more linguistic arguments.

6.7 Method

6.7.1 Participants

Three female Dutch Language and Literature teachers from two different secondary schools in the Netherlands were invited by the first and fourth author to participate in the study. They asked their 11th grade students ($N = 129$) to participate. Nine students withheld their consent, and their data were not collected, leaving a total of 120 participating students (mean age = 16.2; $SD = 0.46$; 65 males, 55 female) who signed a consent form in which was stated that their data would be used anonymously for research purposes. In addition, parents of students younger than 16 years also signed the consent form. The study was approved by the ethics committee of Radboud University Nijmegen, under reference number 22N.005344.

6.7.2 Overall design

Study 2 employed an experimental study in which we adapted the design by Barzilai and Ka'adan (2017) (Figure 1). However, in contrast to their study, conducted in a laboratory setting, we aimed to pursue as much ecological validity as possible by conducting our study in the classroom (Schmuckler, 2001; Shadish et al., 2002 p. 37).

The intervention consisted of three lessons. Students from each class were randomly divided into three conditions: a no-scaffolding condition (NSC), a strategic condition with scaffolding to visualise the conflicting information (SSC), and a meta-strategic condition in which students received strategic scaffolding plus meta-strategic knowledge about integrating conflicting information (MSC). One week before the intervention lessons took place, immediately after the lessons, and three weeks later, students completed a *Language reflective thinking test* to measure their reflective thinking about language issues. We developed three versions of this test each presenting a different topic. These tests were counterbalanced across the

three measurement moments to avoid unintended topic effect (Shadish et al., 2002, p. 109). Students of each class were again randomly assigned to the tests. All materials were developed by the first and fourth author, then extensively tested in a pilot study and revised afterwards (Wijnands, 2022).

6.7.3 Lesson materials

6.7.3.1 Lesson 1 and 3

The first and third lesson were successively about the verb *passen* (to fit) and *wijzigen* (to change). These two verbs can occur in a disputed natural variant that deviates from the prescribed variant (*passen* is prescribed with an inanimate subject and animate object, but it occurs with an animate subject and an inanimate object; *wijzigen* is prescribed as a transitive verb, but it occurs as an unaccusative verb). The structure of the lessons was as follows. First, students had to score the grammaticality of these variants on a 5-point scale from (1) very bad Dutch to (5) excellent Dutch. Then, they had to read three texts about the relevant verb. One text advocated the prescriptive language rule, another gave a logical explanation for the disputed natural variant, and a third text emphasised the choice authors can make based on their language intuitions or on the context. All texts were introduced by a description of a fictional author, from which the level of expertise or reliability could be inferred. Finally, after reading these sources, students had to write an advice for the school newspaper.

During these lessons, students in both scaffolding conditions received strategic scaffolding. In line with the study by Barzilai and Ka'adan (2017), we created an organiser for this. Students were given a paper organiser (A3-size) to visualise the information of the three texts for themselves (Appendix I). This information concerned epistemic scaffolds, such as information about the author, the perspective from which the text had been written, target public of the text, the reliability of the text, position in the discussion, arguments given for this position (Barzilai et al., 2020). After reading each text, students were asked to fill in this organiser. After reading all texts, they could indicate whether or not the texts supported or contradicted each other. NSC students completed the assignment without this organiser.

6.7.3.2 Lesson 2

In the second lesson, MSC students explicitly engaged in weighing conflicting information to stimulate deep understanding of meta-strategic activities. According to Zohar (2012), students should concretely experience these meta-strategic strategies. Based on the results of study 1, which revealed a strong appeal to prescriptive language rules without evaluating arguments for natural variants, we

confronted students with conflicting information in a non-linguistic context where the goal was to arrive at reasoned judgment. In a role-play, groups of four students practiced a court case about a bad bargain to assess conflicting argumentation from a legal point of view. First, they took the role of lawyer in pairs, and subsequently all four of them stepped into the role of judge. Afterward, students reflected on how they had approached the case and how they had come to a judgment. This was followed by a class discussion on why, how, and when to deal with conflicting information on *language issues*. In this discussion, the focus shifted from examining a conflict only from the perspective of the prescribed language rule, to examining it from multiple perspectives (i.e. also from the perspective of language reality and their language intuitions). At the end of the lesson, students filled in an exit ticket in which they noted that when dealing with conflicting sources about language, they should (1) identify conflicting **Topics**, (2) judge **Opponents**, (3) **Generally** assess the conflict from different perspectives, and (4) evaluate **Arguments**. Students got their completed exit ticket back in the third lesson as a reminder and the teacher also explicitly recalled this '**TOGA** lesson'.

In the second lesson, NSC and SSC students worked on a reading comprehension task about prescriptivism in language in the second lesson. They read a discussion between two experts on prescriptivism and completed twelve questions to finally formulate their own position in this discussion.

6.7.4 Language reflective thinking tests

The three tests involve the verbs *realiseren* (to realise), *irriteren* (to irritate) and *herinneren* (to remember), all of which in everyday language have both a reflexive and a non-reflexive form (see Appendix J for an example of a test). Only one of these forms is the prescribed variant and the other is the disputed natural variant. The three tests all had the same outline. First, students had to score the grammaticality of two varieties in Dutch, one being the prescribed variant and the other a disputed natural variant, on a 5-point scale, ranging from (1) very bad Dutch to (5) excellent Dutch. Then, students read two conflicting texts, one advocating one variant and condemning the other largely based on a prescriptive rule, and one advocating the latter and condemning the former, largely based on some linguistic reasoning. Both texts were introduced by describing the fictional author with expertise in the field. After reading each text, students had to score the strength of the argumentation and the reliability of the sources on a 5-point scale. Next, students had to score the grammaticality of the two varieties again. Subsequently, they were asked to write an explanation (maximum 100 words) for their scoring using the sources they had read. All students performed the tests under the same conditions.

Figure 1. Design of study 2

Sessions	Conditions	NSC (N = 39; mean age = 16,2; 22 male)	SSC (N = 41; mean age = 16.2; 21 male)	MSC (N = 40; mean age = 16,1; 22 male)
Pre-test		Measure: <i>Language reflective thinking test</i> (to realise, to irritate, to remember)		
One-week break				
Lesson 1		Linguistic issue (to fit) without scaffolding	Linguistic issue (to fit) with strategic scaffolding	Linguistic issue (to fit) with strategic scaffolding
Lesson 2		Reading comprehension task	Reading comprehension task	TOGA lesson
Lesson 3		Linguistic issue (to change) without scaffolding	Linguistic issue (to change) with strategic scaffolding	Linguistic issue (to change) with strategic scaffolding and exit ticket
Post-test		Measure: <i>Language reflective thinking test</i> (to realise, to irritate, to remember)		
Three-weeks break				
Delayed post-test		Measure: <i>Language reflective thinking test</i> (to realise, to irritate, to remember)		

6.7.5 The implementation

Before implementing this study, teachers were extensively briefed on the content and procedure. They were instructed not to give any classroom content explanations on the different tasks so as not to influence students from the different conditions. However, the teachers were allowed to answer individual questions from the students one-on-one. The teachers also received a manual in advance in which they could read which groups had to work on which material for which test or lesson, what to do with absent pupils, and further instructions during each test or lesson. The first author was present as much as possible during the tests and lessons. When not, teachers were asked to complete a log to register students' questions and the answers given, unforeseen circumstances, and their impression of the lesson to monitor treatment fidelity.

The intervention lessons were all pen-paper-based. Students worked individually on tasks to be completed. An exception was the second lesson in the Meta-strategic condition. This lesson was taught by the first author in a different classroom. Each lesson lasted 50 minutes. Students managed to complete the tasks in time.

The *Language Reflective Thinking Tests* were all paper-and-pencil tests and students worked individually on the tasks. Students were given 15 to 20 minutes to work on the tests. They managed to complete the tests in time.

The rest of the class time and the lessons between the tests and intervention lessons, students spent on assignments given by the teacher. These assignments concerned literature and oral language skills. The NSC and SSC students were also given the ‘TOGA lesson’ after this intervention study was finished.

6.7.6 Data analysis

6.7.6.1 Missing data

Before the analysis, six students were removed from the dataset because they were absent during two tests ($N = 4$), or absent during two or more lessons ($N = 2$). One student’s data were also excluded due to absence during the explicit meta-strategic lesson. This resulted in 113 students whose data were included in the analysis.

During the intervention lessons, most of the remaining 113 students participated. At the pre-test, 4 students were absent, and 1 student left all open questions unanswered (attrition: 3,9%). Since we control for the influence of prior knowledge (i.e. outcomes on the pre-test), we were able to analyse data from 108 students. However, in the post-test, an additional 6 students were absent (attrition: 5,3%) and in the delayed post-test, 23 students were absent (attrition: 20,3%). Leaving out these missing data for each post-test as well, we analysed data of 102 students in the post-test and in the data of 85 students in the delayed post-test. Despite these missing data, the data to be analysed were evenly distributed across the conditions (Table 3).

Table 3. Number of data within each condition after removing missing data

Tests \ Conditions	NSC	SSC	MSC
Pre-test	36	35	37
Post-test	35	32	35
Delayed post-test	28	27	30

6.7.6.2 *Qualitative analysis*

In our analysis, we investigated whether (meta-)strategic scaffolding when reading conflicting information about language issues would affect students' reflective thinking. We analysed students' explanations for the grammaticality scores after reading the conflicting texts. We expected students' reflective thinking to become visible in the way students reasoned about their grammaticality scores in the explanations (e.g. the number and type of perspectives and the use of linguistic arguments for underpinning their position). In our study, we examined whether students' reflective thinking changed in the (delayed) post-test compared to the pre-test, and whether this development differed between conditions.

The first and fourth author engaged in open coding together. A differentiation was made between the use of different types of linguistic perspectives for students' reasoning, being authority, language intuition and language reality on one hand, and the use of linguistic arguments for underpinning students' opinions on the other (Table 4). This resulted in a coding scheme, with which the first author coded all explanations. Next, 30 randomly selected motivations were coded by the second author using the same coding scheme. Cohen's Kappa revealed moderate initial interrater agreement ($\kappa = .59$ $p < .000$). Disagreements were mainly about assigning the codes authority and language reality. All disagreements were resolved through discussion. Based on renewed insights from that discussion, the first author checked all codes. Any remaining uncertainties were discussed with the second and fourth author.

Table 4. Coding scheme for reflective linguistic reasoning.

	Codes	Observed behaviour	Example
Perspectives for linguistic reasoning	Authority	Referring to an authority, such as correct or standard Dutch, or to one of the sources	<i>The second source makes it very clear that ‘Zij herinneren zich hem’ [They remember REFL.PRON him] is bad Dutch and so it will be good if you remove “zich” [REFL.PRON]</i>
	Individual language intuitions	Referring to student's own language intuitions	<i>I think both are still good Dutch, because I don't doubt with those words. If it doesn't look wrong to me, I don't think it's incorrect either.</i>
	Language reality	Referring to how language is used in reality or how other people view this variant	<i>Sentence b is questionable because a lot of people can go and say it is wrong but a lot of people do use it because they think it is logical</i>
Linguistic argumentation	Linguistic argument	Referring to the language system, meaning, context, style, or language change	<i>After reading these sources, I think the first sentence is still questionable Dutch because ‘irriteren’ [to irritate] is not a reflexive verb just like ‘zich ergeren’ [REFL.PRON annoy] ‘Het irriteert hem’ [It irritates him] is good Dutch though because that is a reflexive verb and also has no blending and so the brain doesn't reject that either. That is why this already sounds better Dutch</i>

6.7.6.3 Quantitative analysis: Bayesian estimation

A Bayesian approach was used to address the challenge posed by small sample sizes in intensive data-gathering methods. Bayesian statistics, unlike frequentist methods based on large samples, can yield reasonable results even with moderate sample sizes. However, merely switching to Bayesian modelling does not always solve the underlying issues. For instance, using standard features in statistical software may lead to overfitting. We used weakly informative priors to mitigate this, allowing for ‘mild skepticism’ (Winter & Bürkner, 2021). These priors impose constraints on the model without being overly restrictive. In studies with small sample sizes, weakly informative priors are particularly beneficial because they penalise extreme values more effectively. They prevent overfitting and enhance model performance. Their use should, however, always be accompanied by a sensitivity analysis (Van de Schoot

et al., 2015) to assess the influence of these priors on the outcomes. For a deeper understanding of weakly informative priors, see Gelman et al. (2017).

Prior predictive simulations, as discussed by Gelman (2020) and Wesner and Pomeranz (2021), played a pivotal role in formulating our weakly informative priors. Specifically, we adopted normally distributed priors centred around zero for the slope terms, representing the differences between the conditions. Utilising a normally distributed prior centred around zero for the slope term draws the resulting posterior estimates closer to zero, in contrast to a model assuming equal likelihood across all slope values. This methodology aligns with the concept that unduly large effects warrant constraint, particularly stemming from limited sample sizes (Lemoine, 2019).

As a result, the integration of weakly informative priors fosters the development of more prudent models compared to frequentist models. This, in turn, contributes to improved out-of-sample predictions and a reduced likelihood of Type I errors (Winter & Bürkner, 2021). In the presentation of results, we explicitly examine the influence of priors on the posterior distribution through prior sensitivity analysis, as outlined in (Kallioinen et al., 2024), to ensure transparency regarding the impact of the sample. Lastly, checks were performed to assess whether the data should be modelled using random effects. These checks were performed using LOO-CV procedures (Vehtari et al., 2017). The results of the LOO-CV can be found in Appendix K.

The regression models were computed using Stan (Carpenter et al., 2017), with the aid of the R-package brms (version 2.19; Bürkner, 2017) in R (R Core Team, 2017), employing a seed value of 1993. Four Markov chains were employed for each model. Convergence of the chains was assessed using the Rhat diagnostic, providing insights into their convergence. An initial burn-in phase of 2000 iterations were specified, followed by a fixed number of post burn-in iterations of 4000. Gelman's diagnostic (Gelman et al., 2013) confirmed convergence with these fixed iterations for all four chains across all models. Subsequently, trace plots for each model parameter were visually examined (Vehtari et al., 2021). Visual inspection indicated convergence of all four chains for each model parameter, with visually stacked traces showing constant mean and variance in the post burn-in phase.

6.8 Results

In the test, students had to explain their grammaticality scores of the prescribed and the disputed natural variant after reading two conflicting sources about this linguistic issue compared to their grammaticality scores before reading these sources. This task was designed to elicit students' reasoning on language issues, from which students' reflective thinking could be derived.

Analysis of the results of the post-test administered directly after the intervention yielded no effects on the outcome variables compared to the pre-test (see Appendix L). This might be the result of a testing fatigue, because students had to reason and write about conflicting sources, immediately following the lessons in which they had practiced these skills. In contrast, the delayed post-test did yield effects compared to the pre-test. Therefore, in this study we have focused on the analysis of the delayed post-test.

6.8.1 Delayed post-test

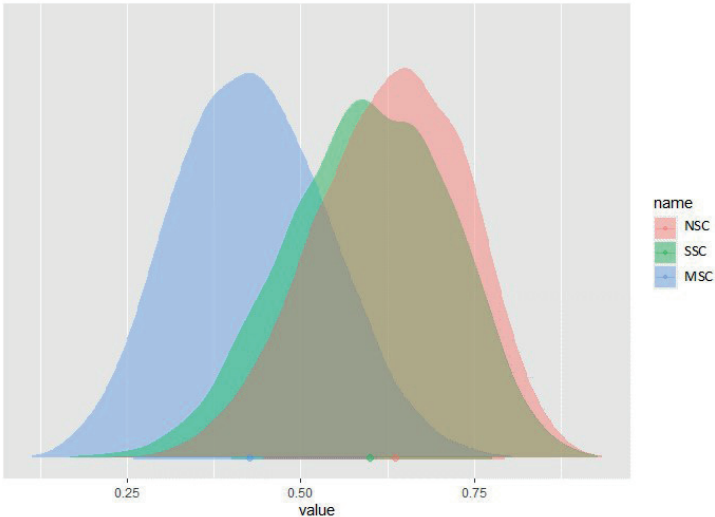
We analysed differences between conditions on the types of perspectives students included in their argumentation and the use of linguistic arguments (Figure 2, Table 5). Regarding the effect of scaffolding on authority, Table 5 shows that no differences can be found (estimated posterior probability $p(\text{SSC} < \text{NSC}) = 0.61$ with an evidence ratio of 1.56) for an isolated effect of *strategic* scaffolding on authority. Therefore, hypothesis 1a could not be confirmed. In line with hypothesis 2a, we found that the probability that a student mentions authority in the explanation is lower when a student received *meta-strategic* scaffolding in comparison to no scaffolding. The estimated posterior probability of the effect being $p(\text{MSC} > \text{NSC}) = 0.95$ with an evidence ratio of 20.39, suggesting strong evidence (Table 5). Furthermore, we found that the probability that students in the MSC-condition (combining strategic scaffolding with meta-strategic scaffolding) mentioned authority in the explanation was lower compared to students in the SSC-condition (receiving only strategic scaffolding). However, the estimated posterior probability of the effect being $p(\text{MSC} > \text{SSC}) = 0.9$ with an evidence ratio of 9.35, suggesting moderate evidence (Table 5).

As can be seen in Figure 2 and Table 5, no effects of scaffolding or meta-strategic scaffolding were found for language intuition and language reality. Hypotheses 1b and 2b can therefore not be confirmed.

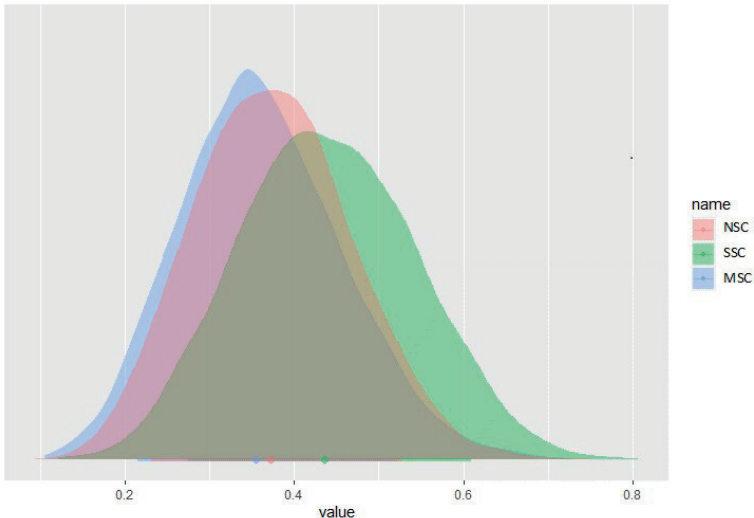
Regarding the effect of scaffolding on linguistic arguments, in line with hypothesis 1c, we find that the probability that a student uses a linguistic argument in the explanation is higher when a student received *strategic* scaffolding in comparison to no scaffolding (Figure 2). Table 5 shows the estimated posterior probability of the effect being $p(\text{SSC} > \text{NSC}) = 0.87$ with an evidence ratio of 6.94, suggesting moderate evidence (Wagenmakers, 2018). We find that the probability that a student uses a linguistic argument in the explanation is higher when a student received *meta-strategic* scaffolding in comparison to no scaffolding. The estimated posterior probability of the effect being $p(\text{MSC} > \text{NSC}) = 0.98$ with an evidence ratio of 45.24, suggesting strong evidence (Table 5). However, there is a lack of evidence for *meta-strategic* scaffolding ($= 3.55$) and low posterior probability ($= 0.78$) to conclude that combining strategic scaffolding with meta-strategic scaffolding increase the chances of students to use linguistic arguments in their explanations compared to strategic scaffolding. Therefore, hypothesis 2c could not be confirmed.²

2. To perform the sensitivity analysis in this study, we adhered to the methodology outlined by Kallioinen et al. (2024). Results are in Appendix M.

A. Authority



B. Language intuitions



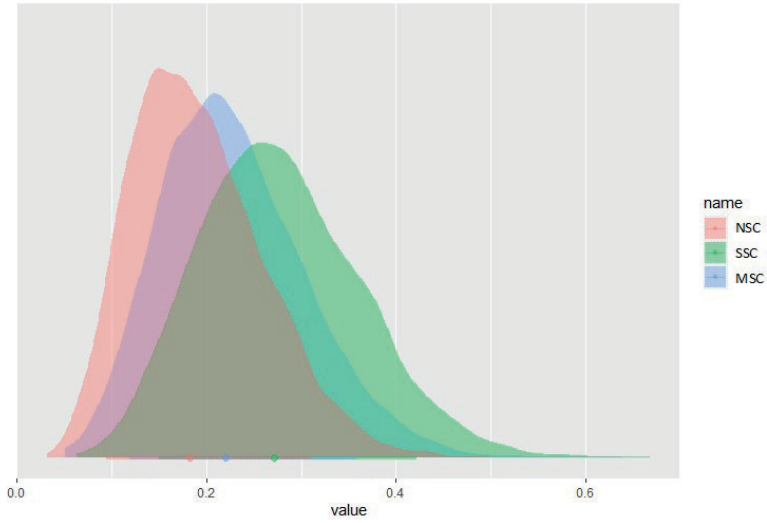
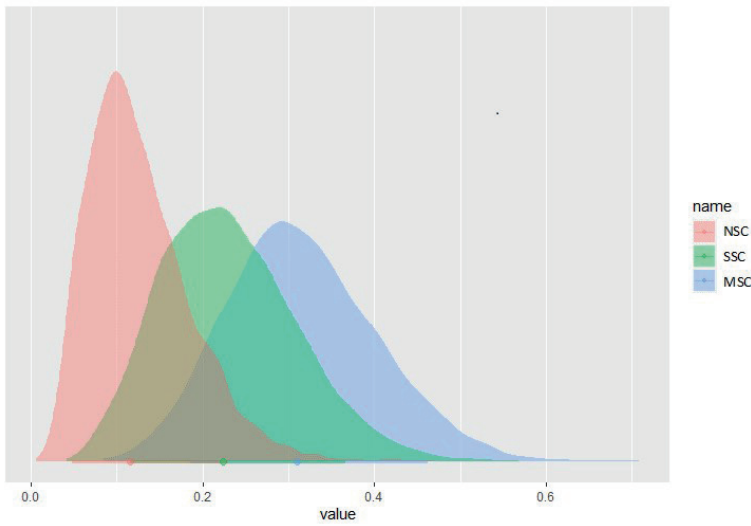
C. Language reality**D. Linguistic argumentation**

Figure 2. The distribution of referring to Authority (A), language intuitions (B), language reality (C), and the use of linguistic argumentation (D) by students from the three conditions.

Table 5. Hypotheses tests for referring to language intuition, language reality, authority, and linguistic argumentation in students' explanations in the delayed post-test

Outcome	Hypothesis	Estimated difference in probability	[95%CI]	Evid. Ratio	Post. Prob.
Authority	MSC < SSC	-0.17	[-0.37, 0.04]	9.35	0.9
	MSC < NSC	-0.2	[-0.4, 0]	20.39	0.95
	SSC < NSC	-0.03	[-0.24, 0.18]	1.56	0.61
Language intuition	MSC > SSC	-0.08	[-0.28, 0.12]	0.36	0.27
	MSC > NSC	-0.01	[-0.21, 0.18]	0.82	0.45
	SSC > NSC	0.06	[-0.14, 0.27]	2.28	0.7
Language reality	MSC > SSC	-0.05	[-0.23, 0.12]	0.48	0.33
	MSC > NSC	0.04	[-0.12, 0.2]	1.88	0.65
	SSC > NSC	0.09	[-0.08, 0.26]	4.02	0.8
Linguistic argumentation	MSC > SSC	0.09	[-0.1, 0.26]	3.55	0.78
	MSC > NSC	0.19	[0.04, 0.35]	45.24	0.98
	SSC > NSC	0.1	[-0.05, 0.26]	6.94	0.87

Note. The Table explicitly shows our hypotheses and whether this hypothesis is supported based on our model and the data. For example, we see that students who received MSC have a higher probability (0.19 higher) of using linguistic argumentation in their explanations compared to students who received no scaffolding. The evidence ratio is the posterior probability (Post. Prob.) under the hypothesis against its alternative.

6.9 Discussion

Study 2 aimed to investigate to what extent strategic and meta-strategic scaffolding stimulate students' reflective thinking when consulting conflicting sources about a language issue. Three levels of scaffolding were applied, being 'no scaffolding' (NSC), 'strategic scaffolding' (SSC), and 'meta-strategic scaffolding' (MSC). Two hypotheses guided this study.

For hypothesis 1, we investigated the extent to which SSC students differ from NSC students in their considerations about language issues when confronted with conflicting information. According to Barzilai and Ka'adan (2017), scaffolding students with an organiser to make the information of different sources visible supported students' integration of information. In our study, we therefore hypothesised that SSC students would use less authoritative reasoning than NSC students (hypothesis 1a), show more reasoning from the perspectives of language

intuition and reality than NSC students (hypothesis 1b), and use more linguistic arguments than NSC students (hypothesis 1c). We found compelling evidence for hypothesis 1c. SSC students used more linguistic arguments than NSC students. Hypotheses 1a and 1b could not be confirmed.

For hypothesis 2, we investigated the added value of the meta-strategic scaffolding with respect to students' reflective thinking. According to Barzilai and Ka'adan (2017), meta-strategic scaffolding stimulates students even more in dealing with conflicting information than only strategic scaffolding, because meta-strategic scaffolding provides students with explicit knowledge of epistemic strategies for evaluating and reconciling divergent accounts. In our study, we hypothesised that MSC students would outperform SSC students. This should become visible in the use of less authoritative reasoning (hypothesis 2a), more reasoning from language intuition and reality (hypothesis 2b), and more use of linguistic arguments (hypothesis 2c) in the explanations by MSC students compared to the explanations by SSC students. In line with hypothesis 2a, we found moderate evidence that MSC students use less authoritative reasoning than SSC students. Hypothesis 2b and 2c could not be confirmed. However, although MSC students did not mention linguistic arguments more often than SSC students, they did so compared to NSC-students.

Our research question can be partially answered positively. It should be emphasised that students were not given any scaffold at all in the tests, but the use of an organiser in the intervention lessons seem to stimulate SSC and MSC students in using linguistic arguments in their explanations, a finding that is in agreement with finding from other domains (Barzilai & Ka'adan, 2017; Barzilai, Mor-Hagani et al, 2020; Britt & Rouet, 2012). The results of this study also show that this scaffolding has a long-term effect. This use of more linguistic arguments in their explanations might be promising in the light of the development of reflective thinking. Using linguistic arguments has been shown to be a good predictor of better linguistic reasoning (see, for example, Van Rijt (2020)) which can be seen as an indication of more linguistic reflective thinking (Van Rijt, Wijnands & Coppen, 2019).

We also found that MSC students referred less often to authority than SSC and NSC students, although evidence of the difference between MSC and SSC is moderate. An explanation could lie in TOGA-lesson or in the combined effect of strategic and meta-strategic scaffolding. In the TOGA-lesson, MSC students took the role of authority themselves, first as a lawyer to gather arguments for one perspective and then as a judge to evaluate different perspectives. Through this role-play students might have realised that knowledge is not only reserved for authorities (like scientists),

but they can evaluate knowledge claims themselves (King & Kitchener, 1994). Also, students might have realised that even experts hold different positions and multiple interpretations coexist. The class discussion in which the role-play was compared to conflicting expert opinions in a language discussion, might have had a positive effect on their reflective thinking about language in the delayed test. However, we did not investigate whether the TOGA-lesson alone affected the reduced reference to authority or whether this outcome is due to the combination of strategic and meta-strategic scaffolding. This needs to be investigated further.

Returning to our main question, we can conclude that scaffolding has a positive impact on students' reasoning about language issues when consulting conflicting sources. We found that strategic scaffolding with an organiser that supports students to visualise the position of each source and the difference between sources, increases their use of linguistic arguments. Based on this observation, we conclude that strategic scaffolding increases students' linguistic reasoning. In addition, when students are made aware of the added value of strategic assessment of the sources (through meta-strategic scaffolding), they were less inclined to reason from the perspective of authority. As reasoning is a manifestation of the level of reflective thinking (King & Kitchener, 1994; Wijnands et al., 2021), we can conclude that strategic scaffolding seems to germinate reflective thinking and that combining this with meta-strategic scaffolding does so more strongly.

6.9.1 Limitations and implications

Due to the pursuit of ecological validity and randomisation of students within school classes, explicit teaching strategies such as whole-class discussions were not possible, neither was collaboration in peer groups. Literature in the history domain shows that such explicit teaching strategies have a positive effect on student performance (Stoel et al., 2017; Van Drie & Van Boxtel, 2011). Peer discussions also help students to reason about different viewpoints with their justifications (Barzilai, et al., 2020; Van Boxtel, 2004; Mercer, 2002, 2008; Stoel et al., 2015; Zohar, 2012). The lesson plans tried to overcome these omissions as much as possible by asking open questions, but further research should examine whether an explicit role of the teacher and working in peer groups would further stimulate reflective thinking about language issues when working with conflicting sources. This also might have a positive effect on students' motivation during lessons and tests. In Study 2, we observed a motivation dip among students during the intervention lessons and the first post-test. This could be a consequence of the paper-and-pencil structure of the lessons and tests in which students had to work individually in silence. Students in the meta-strategic

scaffolding condition were enthusiastic about the second intervention lesson in which the role of the teacher was more explicit.

Another limitation of this study was that the writing tasks (from the *Language Reflective Thinking Tests*) did not explicitly ask for students' reasoning. As a result, students may have written down their conclusion omitting their reasoning that preceded it (see also Havekes, 2015; Van Drie & Van Boxtel, 2008, for the history domain). To reveal students' thinking more, further research could ask students explicitly to reason about language issues in thinking aloud tasks when consulting conflicting sources. This might also result in more use of the perspectives of language intuitions and language reality, for which we found no effect in this study.

Furthermore, the lack of effects, such as an effect on authority among SSC students in the delayed post-test, may also be due to the small number of participants in the different conditions and the limitedness of the intervention (three lessons). More research is needed to find out whether more effects can be identified when more participants participate in each condition and receive prolonged scaffolding.

In this second study, we implemented the recommendation from study 1 to present the conflicting information to students in two different sources. We did not investigate whether this way of confronting students with conflicting information elicited more reflective thinking about language issues than when the same conflicting information was presented in one source. This too should be investigated further in follow-up research.

6.10 Overall conclusion

In two studies, we explored the potential for stimulating students' reflective thinking on language issues by confronting them with linguistic sources. From study 1, it appeared that confronting students with primary sources did not stimulate spontaneous linguistic reasoning about different variants in language reality. Instead, students simply searched for confirmation of their previous reasoning or chose the most common solution. Confronting students with secondary sources resulted in a convergent search for one correct answer. Students tended to (over)value the source that contained the prescriptive rule or the source that aligned with their prior knowledge. However, while working with secondary sources, a first step towards linguistic reasoning became visible when students noticed that a second variant was also approved in language reality. This emerging divergent thinking tended to lead

to confusion, which was then followed by a convergent explanation aimed at (re-) establishing one 'true' answer without describing, comparing or evaluating different perspectives. In conclusion, study 1 highlighted the importance of scaffolding students' reasoning if we want them to move beyond confusion or overreliance on 'authority', and move towards engaging in nuanced linguistic reasoning, in which different arguments can be weighed.

While in study 1, the secondary sources tended to integrate both the *prescriptive* and *descriptive* rules within one source, in study 2, opposite positions on a language issue were presented in separate sources to prevent students from 'choosing the safe option' and stimulate reflective thinking and reasoning. Furthermore, based on study 1 and on the work of Barzilai and Ka'adan (2017), strategic and meta-strategic scaffolds were designed to support students to analyse and evaluate conflicting sources and information. Students receiving strategic scaffolding used more linguistic argumentation in their explanation of a linguistic issue compared to students in the no-scaffolding condition. Students who additionally received meta-strategic scaffolding were less inclined to reason from an authoritative perspective. Combining strategic and meta-strategic scaffold appeared to have the strongest effect on students' quality of their linguistic reasoning, although this reasoning remained quite low.

In conclusion, the two studies in this chapter show that working with multiple (secondary) sources that present conflicting perspectives on language issues and scaffolding students' strategic and meta-strategic reasoning about evaluating this conflicting information can stimulate the onset of reflective thinking about language. Further research could explore whether an explicit role of the teacher and more systematic inclusion in the curriculum could further increase this development.



Chapter 7

General discussion and conclusion

7.1 Introduction

This final chapter summarises and discusses the findings of the five studies conducted in this dissertation, synthesising the results to provide insight into how the use of linguistic sources in L1 language education can foster students' reflective thinking about language issues. To iterate, the overarching research question of this dissertation was formulated as follows in chapter 1:

How does the use of linguistic sources in pre-university grammar education contribute to the development of students' reflective thinking about language?

To answer this overarching research question, three research questions were addressed in five studies:

1. How can teachers' and students' reflective thinking about language be characterised in current L1 grammar education? (Chapter 2 and 3)
2. What are pedagogical means to teach students about the workings and structure of language in a more reflective way, and how do teachers experience the classroom implementation of these pedagogical means? (Chapter 4 and 5)
3. What kind of scaffolding is needed to stimulate students' reflective thinking when being confronted with conflicting sources about a language issue? (Chapter 6)

Section 7.2 will answer these questions by summarising and synthesising the main research findings of the studies in the previous chapters. In section 7.3, we will discuss four themes in depth, namely *conflicting linguistic sources*, *scaffolding*, *teacher role*, and *reflective thinking about language*. Section 7.4 discusses the limitations of these studies as well as directions for further research. Finally, in section 7.5 practical implications for secondary education will be formulated.

7.2 Summary of findings

7.2.1 Findings with respect to research question 1

The first research question that was addressed in this dissertation was: *How can teachers' and students' reflective thinking about language be characterised in current L1 grammar education?* To answer this question, we conducted two studies. One on teachers' beliefs about teaching grammar and one focusing on students' epistemic beliefs about grammar.

In the study on teachers' beliefs about teaching grammar in Chapter 2, we conducted a questionnaire among 110 Dutch language teachers from secondary education and we analysed two contemporary textbooks likely to reflect existing teachers' beliefs. Because comprehension of grammatical concepts can be seen as a prerequisite for the development of reflective thinking (Ribas et al., 2014), our focus was both on linguistic concepts and on reflective thinking. We formulated the following research question: *What are teachers' beliefs regarding conceptual knowledge and reflective thinking in grammar teaching?*

Results of the questionnaire showed that most Dutch language teachers appear to hold positive views towards reflective thinking in the grammar classroom, which echoes important ideologies in grammar teaching and in related research. The results also showed that teachers believe reflective thinking in grammar teaching more important for students with greater cognitive capacity. Regarding teachers self-reported knowledge on main concepts from modern linguistics, teachers claim to know a small number of concepts that are associated more to traditional grammar than to modern linguistic theory. From the analysis of the textbooks, it appeared that the vast majority of exercises can be characterised as involving lower-order thinking, offering little possibilities for developing a reflective attitude. Moreover, textbooks only scarcely implement insights from modern linguistic theory, and if they do so, this is mostly done in an implicit manner. The conclusion of this study was that teachers seemed to have beliefs on grammar teaching that match the ideologies on reflective thinking and conceptual knowledge fairly well. However, the textbooks they made use of did not offer many opportunities to implement these ideas and the self-reported knowledge of teachers on main concepts from modern linguistics is low.

In the study on students' epistemic beliefs about grammar in Chapter 3, we transposed Stoel et al.'s (2017) questionnaire for measuring beliefs about history into the domain of grammar. In total seven linguistic experts filled in this transposed questionnaire, as well as 300 pre-university students from the Netherlands (119 11th graders, 53 12th graders) and Flanders (128 11th graders).

We first examined whether Stoel et al.'s (2017) questionnaire could be transposed to the linguistics education domain. We concluded that this was possible. Factor analysis revealed two factors. A division between convergent and divergent items could be distinguished. This division was in line with the conceptual underpinnings of Stoel et al. (2017).

Secondly, we examined how pre-university students' epistemic beliefs on language related to experts' beliefs. We found that experts, as well as students, valued divergent thinking items higher than convergent thinking items. This high scoring on divergent thinking by students could indicate a baseline score that is influenced by students' ideas about how knowledge is acquired in general, and thus also for the grammar domain. Regarding the students, we observed no significant difference in divergent thinking between 11th graders and 12th graders. However, we found that students' scores on convergent thinking were higher than the experts' scores and that students' scores on divergent thinking were lower. Moreover, we found some development in students' convergent thinking: Dutch 12th grade students agreed less with items about convergent thinking than 11th grade students.

To conclude, Chapter 3 showed that our transposition of the questionnaire by Stoel et al. (2017) offered a valid instrument that revealed a clear difference between secondary school students and experts, and to a lesser extent a difference between different categories of students. It seems that the decrease of the affinity with convergent thinking could be seen as a development towards more expert thinking about grammar. The gap between students' beliefs on divergent thinking about grammar and experts' beliefs, could be ascribed to the level of academic thinking by experts.

In answer to the first research question of this dissertation, *How can teachers' and students' reflective thinking about language be characterised in current L1 grammar education?*, these studies showed that teachers are positive about reflective thinking about grammar teaching in the classroom. They are open for implementing activities that foster reflective thinking. Students' beliefs on grammar are more convergent and less divergent compared to experts' beliefs. Although students seem to believe that divergent thinking is necessary to construct knowledge, they still strongly adhere to convergent thinking to arrive at a correct answer or analysis. This strongly suggests that students function at the level of pre-reflective thinking rather than at the level of reflective thinking when it comes to grammar.

7.2.2 Findings with respect to research question 2

The second research question was: *What are pedagogical means to teach students about the workings and structure of language in a more reflective way, and how do teachers experience the classroom implementation of these pedagogical means?*

To answer this question, we first developed in Chapter 4 a template for a new grammar pedagogy based on two well-established, existing models of cognitive and

reflective learning, being the framework for cognitive thinking by Moseley et al. (2005) and the Reflective Judgment model by King and Kitchener (1994). The central research question was: *What are the pedagogical means to teach students about the workings and structure of language in a more reflective way, using higher-order thinking skills?*

The original three stages model of cognitive learning by Moseley et al. (2005) contains a general layer of reflective thinking on top of the model. We combined this model with the model of King and Kitchener (1994) that differentiates between three levels of reflective thinking about ill-structured problems. While the stages of cognitive thinking represent a kind of convergent thinking, the levels of reflective thinking represent a kind of divergent thinking. Thus, based on these models, we designed a matrix that could be used to describe individuals reasoning in each stage of cognitive thinking depending on their level of reflective thinking (see Figure 1). We have called this matrix *the template for a new grammar pedagogy*.

This template enables teachers to design pedagogical arrangements to support students higher-order thinking skills for the study of language, as well as supporting students reflective thinking about language rules and linguistic sources. The template enables students to explore ill-structured language problems in a convergent way, but also allows them to explore more divergent questions by consulting primary and secondary sources. These sources allow students to investigate language from three perspectives, namely the perspective of prescriptive grammar rules, the perspective of language reality, and the perspective of the individual language intuitions. When working with the template, it is important that teachers do not inhibit students' divergent thinking by acting as an authority during students' thinking process. Consequently, we constructed a 'toolbox' that students could consult to support them when working on linguistic problems and consulting linguistic sources.

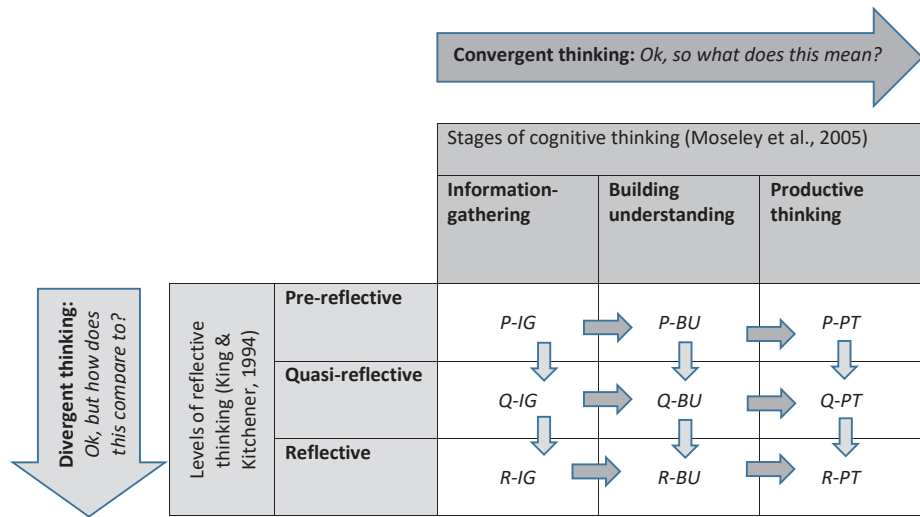


Figure 1. Template for a new grammar pedagogy.

Note. Nine different stages of combined reflective and cognitive development thinking (f.i. P-IG means: stage of Pre-reflective – Information Gathering; Q-BU means: stage of Quasi-reflective – Building Understanding; R-PT means: stage of Reflective – Productive Thinking).

In Chapter 5, we tested several arrangements that teachers designed based on the pedagogical template in three iterations following a Lesson Study approach. In a qualitative study, we examined how teachers ($N = 5$) responded to and evaluated lessons in which students ($N = 78$, ages 15–18) were confronted with an ill-structured language problem. For this, we formulated the following research question: *How do teachers experience and redesign the classroom implementation of Wijnands et al.’s (2021) pedagogical template aimed at enhancing reflective thinking in the domain of language?*

From the analysis of the first iteration, it appeared that the teachers were mainly focused on their students’ cognitive performances. Moreover, the teachers expressed the need for greater control over their students’ cognitive outcomes. However, in the second iteration, teachers experienced that presenting a strict dichotomy between right and wrong, also did not have the desired effect. Still, teachers maintained that the students were not mature enough for reflective linguistic thinking and more scaffolding was needed than had been offered in the toolbox. This resulted in a third iteration in which reflection questions were formulated at the end of each assignment, using the wording: “OK, so ...” and “OK, but” in order to guide students toward choosing a convergent or divergent route through the template. From the analysis of the third iteration, it can be concluded that the final assignments succeeded in eliciting the uncertainty and discomfort among students that were expected to be

important for the development of reflective thinking. In addition, the mention of primary sources by students who worked on (quasi-)reflective thinking assignments suggested some level of reflectivity.

Chapter 5 concluded that the teachers in the Lesson Study group recognise that assignments need to create doubt if they are to trigger development in students' reflective thinking. However, the teachers still feel a strong need for control and focus foremost on cognitive performance. Teachers appeared to understand reflective thinking about language, primarily as 'reflection on language', and thus essentially as a form of convergent thinking.

In answer to the second research question, *What are pedagogical means to teach students about the workings and structure of language in a more reflective way, and how do teachers experience the classroom implementation of these pedagogical means?*, Chapters 4 and 5 show that the template provides a useful instrument for designing assignments for students about the workings and structure of language in a more reflective way using linguistic sources. The use of linguistic sources that address a language issue from multiple perspectives can stimulate divergent thinking which in turn is important for reflective thinking about a language issue. These studies also show that the main issue in the delivery of lessons on reflective thinking is finding a balance between students' uncertainty and the teacher's need for control.

7.2.3 Findings with respect to research question 3

As a follow-up to the need for scaffolding to elicit more reflective thinking, we formulated research question 3 as follows: *What kind of scaffolding is needed to stimulate students' reflective thinking when being confronted with conflicting sources about a language issue?*

Results of a small exploratory study in Chapter 6 showed that consulting authentic linguistic sources triggered mainly pre-reflective (convergent) thinking, and only a start of quasi-reflective thinking. We found that primary sources mainly elicited convergent reasoning, whereas secondary sources triggered some instances of divergent reasoning, although this was almost always immediately followed by a convergent answer. We surmised that this might be due to the fact that in secondary sources a strict norm is expressed first, often expanded by description of other acceptable variants in, usually, more informal contexts. As a result, students could always choose a 'safe variant', namely the strict norm.

Consequently, in an experimental follow-up study in Chapter 6, we designed linguistic sources that explicitly contradicted each other to eliminate the ‘safe variant’. We conducted an intervention among 121 11th graders, following Barzilai and Ka’adan (2017). The central question in this study was: *To what extent does strategic and meta-strategic scaffolding stimulate students’ reflective thinking as observed in students’ reasoning, when being confronted with conflicting sources about a language issue.*

In the intervention, we confronted students in lessons with multiple conflicting sources on a language issue that advocated at least two opposing positions. We found that using a strategic scaffold (a graphical organiser) to compare sources, increased students’ use of linguistic arguments at the delayed post-test. This made us conclude that strategic scaffolding supports the onset of reflective thinking. Students who also received a meta-strategic scaffold (i.e. the TOGA-lesson) were found to rely less on the perspective of authorities.

In this study, we concluded that presenting students with multiple (secondary) sources that argue for oppositional perspectives on language issues and don’t explicitly include a ‘safe variant’, and scaffolding students’ strategic and meta-strategic reasoning about this conflicting information, stimulates the onset of reflective thinking about language.

7.2.4. Findings with respect to the overarching research question

The overarching research question of this dissertation was formulated as follows: *How does the use of linguistic sources in pre-university grammar education contribute to the development of students’ reflective thinking about language?*

The results of the studies in this dissertation showed that teachers are open for implementing linguistic sources into the classroom and for more reflective thinking about language in grammar education. Students seem to believe that divergent thinking is necessary to construct knowledge, but they still strongly adhere to convergent thinking to arrive at a correct answer or a correct grammatical analysis. The studies also show that bringing linguistic sources into the classroom can germinate the beginnings of reflective thinking in students. However, authentic linguistic sources, such as language corpora or language advice works, *alone* did not seem sufficient to support students towards more reflective thinking. This is due to the fact that a conflict between the strict norm (prescriptive language rules) and other variants (form language reality) is presented within these sources, and the norm is explicitly present. Although consulting those sources might trigger the confusion and uncertainty needed for the onset of reflective thinking, these authentic linguistic sources do not stimulate further divergent exploration in terms

of evaluating multiple perspectives and drawing a conclusive supported by linguistic arguments, but rather consolidate convergent thinking, by allowing students to fall back on the prescriptive language rule. To bring linguistic sources into the classroom successfully, the studies in this dissertation found that students should be confronted with multiple linguistic sources each taking oppositional views on the language issue by approving one variant and condemning the other. In this way, students are confronted with equivalent sources in which there is no longer a safe option. This forces them to investigate a language problem themselves.

However, presenting students with multiple, oppositional linguistic sources alone is not sufficient to elicit reflective thinking. Scaffolding is necessary. Our studies showed that strategic scaffolding supports students in developing linguistic arguments to evaluate their position on the language issue. Through meta-strategic scaffolding on a non-language topic, students learn that they can be an authority themselves and make and substantiate their own judgements. This experience can support a decline in reliance on external authorities, resulting in less authoritative argumentation. In this development of reflective thinking, teachers should allow students to deal with their uncertainty rather than controlling students' cognitive thinking. Students should learn that reflective thinking about language means (self-)evaluating different linguistic arguments from different perspectives and not blindly following authorities, such as the prescriptive language rules or the language authority of their teachers. Only then can students develop their linguistic awareness and progress towards linguistic expertise.

7.3 Discussion

The main aim of this dissertation was to gain insight into how the use of linguistic sources in L1 grammar education fosters students' reflective thinking about language issues. This aim ties in with recent educational reforms that pay much attention to the importance of creativity and critical thinking to foster language awareness and reflection on language (Platform Education2032, 2016; Curriculum.nu, 2019; Herder et al., 2022; Levende Talen, 2019; Meesterschapteam, 2021; Vanhooren et al., 2017; Prenger & Pleumeekers, 2024). Learning to think creatively and critically about language requires students to develop a more reflective attitude about language. In this dissertation, we used the model of reflective development by King and Kitchener (1994) in the field of grammar in order to gain insight in students' reflective thinking about language issues and teachers' reactions to lessons in which students were confronted with language issues requiring reflective thinking. Reflective thinking

about language entails divergent thinking about language issues and a certain resistance against a convergent solution. This thinking requires evaluation of grammatical issues from multiple perspectives to provide linguistic arguments to substantiate a judgement. We facilitated and stimulated students to work on this by confronting them with primary and secondary linguistic sources to develop their linguistic awareness. In the overall process of this dissertation research, we gained a sharper understanding of four overarching concepts: *conflicting linguistic sources*, *scaffolding*, *the role of the teacher*, and *reflective thinking about grammar*.

7.3.1 Conflicting linguistic sources

In the different studies in this dissertation, we confronted students with different types of linguistic sources: authentic primary linguistic sources, and authentic and non-authentic secondary linguistic sources. We tested different types of conflicts. We discovered that authentic primary linguistic sources can cause some doubt or cognitive friction that can be a possible trigger for the development of reflective thinking. However, these sources are not sufficient enough to suppress students' tendency for convergent thinking. Students labelled the most common variant as the correct one or they chose the variant that best matched their prior knowledge. Regarding authentic secondary linguistic sources, we found that these sources often present a strict and a tolerant variant allowing students to opt for this safe strict variant. Students converge to the safe option of the prescribed variant even when the source indicates that variants other than the prescribed variant are also allowed.

That is why it is important to create truly oppositional, conflicting linguistic sources in which one variant is advocated and the other is rejected. However, in Chapter 6 of this dissertation the control condition (NSC) shows that constructing truly oppositional sources is insufficient in itself to initiate reflective thinking development. Only when these constructed oppositional sources are combined with scaffolding, we see some reflective thinking germinate. Then students use less authoritative thinking, and include linguistic argumentation in their judgments.

Chapter 6 suggests that in practice, students actually prioritise convergent thinking over divergent thinking when it comes to language analysis. This could have to do with the dominant practice of sentence part parsing in which students have been taught that language questions can be answered unambiguously (for similar results in mathematics education, see Muis, 2004; Depaepe et al., 2016). The school setting that revolves around either right or wrong does not encourage students to look for more possible answers when consulting sources. This result seems inconsistent with students' epistemic beliefs about grammar we measured in Chapter 3. In this study,

we found that 11th graders scored divergent items in the grammar questionnaire higher than convergent items, although there were significant differences between students and experts. However, the adherence to convergent thinking when working on language issues confirms our conclusion that students' high scores on divergent thinking resembles a baseline score that is influenced by students' *ideas* about how knowledge is acquired in general. To open students' mind for divergent and evaluative thinking on language issues, more pedagogical support is necessary.

7.3.2 Scaffolding

In Chapter 5, the scaffolding aimed to have the student explore the language issue from the three perspectives of the student's language intuitions, language reality and prescriptive language rules. Students worked on several assignments in which they consulted their own language intuitions and other authentic linguistic sources to reach a possible judgement on a language issue (convergent thinking) or to reason more deeply about the issue by incorporating more perspectives (divergent thinking). Although these assignments evoked the uncertainty and discomfort, that are important starting point for the development of divergent thinking (Bendixen, 2004; Ferguson et al., 2012; King & Kitchener, 1994, Kienhues et al., 2016), it turned out that this form of scaffolding did not really stimulate students to engage in divergent thinking about language.

To follow up on this, and following Barzilai and Ka'adan (2019), the scaffolding in Chapter 6 did not concentrate on how *to reason* about a linguistic issue, but concentrated on strategic levels *to deal* with oppositional, conflicting sources. In this study we designed two forms of scaffolding. Strategic scaffolding helped students in their reflective reasoning about language by making information of the linguistic sources visible in a strategic organiser. Meta-strategic scaffolding supported students' reflective thinking by exploring a non-linguistic issue from different perspectives and formulating a substantiated judgment on basis of these perspectives. Subsequently, the students transposed the acquired skills to formulating a judgment about a linguistic issue. Results showed, that students receiving strategic scaffolding used more linguistic arguments when judging a linguistic issue. Furthermore, students who also receiving meta-strategic scaffolding used less authoritative argumentation in their judgment than students who did not receive meta-strategic scaffolding.

The results of these studies revealed that for making a substantiated judgement about a linguistic issue, it is important to make information from the sources visible (cf. Britt & Rouet, 2012). The results of these studies also revealed that meta-strategic scaffolding triggered students to take the role of an authority themselves and to

evaluate perspectives without the pressure of the prescriptive language rules. As noted by Zohar and colleagues (Zohar, 2012, p.202; Zohar & Ben David, 2008, p. 60), explicit teaching of meta-strategic knowledge is not a matter of ‘knowledge transfer’ or rote learning, but students must actively engage in the construction of meta-strategic knowledge in order to promote higher thinking and deep understanding (Ben-David & Zohar, 2009). Actively engaging in this kind of thinking through a practical experience, as in Chapter 6 through the TOGA lesson, gives students a better understanding of what meta-strategies are and when and how to use them. Our study suggests that this way of strategic and meta-strategic scaffolding makes students less susceptible for authoritative reasoning, and stimulates them to use linguistic argumentation in developing their judgement, which is a step forward towards more divergent thinking about language.

7.3.3 Teacher role

Literature shows that the role of the teacher is crucial in developing reflective thinking in the classroom. In this development, the teacher should focus on student’s thinking and should not take on an authoritative role (Bendixen, 2016; Mathis & Parkes, 2020; Muis, 2004).

The results on the questionnaire in Chapter 2 show that teachers are open to more reflective thinking in the classroom. However, it is questionable whether this picture given by teachers also corresponds to practice, as previous literature shows that this is not necessarily always the case (Elby et al., 2016; Van Rijt, 2020; Watson, 2015b). Chapter 2 also revealed that the knowledge needed to implement reflective thinking in the classroom is low. This low concept knowledge confirms findings in other studies which showed that teachers in grammar education are often reluctant because of a lack of conceptual knowledge (Chen & Myhill, 2016; Denham, 2020; Giovanelli, 2015; Hudson, 2004; Jones & Chen, 2012; Strandberg, 2023; Watson, 2015b). Having a form of ‘knowledge embarrassment’ among teachers can result in avoiding issues that require divergent thinking. Teachers may also feel they need to have secure knowledge about these concepts, before they can engage students in dealing with uncertainty (Mathis & Parkis, 2020; Wansink et al., 2016).

In Chapter 5, we saw something different happening. Although the teachers from the professional learning community were thoroughly briefed about and open to reflective thinking on language issues, they still felt a strong need to control their students’ cognitive performance and in their discussion and redesign, barely focused on students’ reflective thinking. This focus on the cognitive performance is in line with previous research (Van den Broek, 2020) and was also found for the history

domain (Maggioni, 2010; Havekes et al., 2007). In this study, this focus on cognitive performance of students seemed to affect the teachers' perceptions of the concept of reflective thinking. They seemed to interpret 'reflective thinking' more as 'reflection on language'. While reflective thinking involves reasoning about language from multiple linguistic perspectives based on underlying epistemic beliefs, 'reflection on language' only involves reasoning about language.

To conclude, both studies show that teachers are willing to engage in more reflective thinking and divergent thinking on language issues, but the studies do reveal two pitfalls. The first one is teachers' reluctance to think divergently with students about language issues potentially due to lack of or confidence in their own knowledge. The second pitfall concerns teachers' control over students' cognitive performance on convergent thinking, which hinders the development towards more divergent and reflective thinking.

7.3.4 Reflective thinking about language

Literature on other topics than grammar shows that development of reflective thinking is laborious and it takes a long time (Bendixen, 2016; Ben-David & Zohar, 2009; Elby et al., 2016; Green, et al., 2016; King & Kitchener, 1994, 2002, 2004; Muis, 2004). It seems that developing reflective thinking is even more difficult when in the school setting the focus is on correct answers (Muis, 2004; Sandoval, 2016). The studies in this dissertation not only show that this difficulty is also prominently present in grammar education but also contributed to our understanding of what reflective thinking about language entails.

In Chapter 4 and 5, we started from the idea that reflective thinking about language could be stimulated by having students investigate different perspectives on an ill-structured language problem, being their own language intuitions, language reality and the prescriptive language rules. The underlying idea was that this would allow students to discover the divergent conflict between these perspectives and learn to 'solve' these tensions in a well-balanced judgment. However, we found that students had difficulty to reason about the language problem and to weigh the different perspectives equally. They were hampered in this by the prescriptive language rules and converged directly to the safe perspective of the prescriptive language rules.

Through the intervention study in Chapter 6, we came to understand that reflective thinking is strongly related to thinking about language in a non-authoritative way, exploring multiple linguistic perspectives, and employing linguistic argumentation when reasoning about language. Learning to think about language in a non-

authoritative way stimulates students' epistemic beliefs about language. It suggests, they realise that knowledge about language is not fixed but constructed and argued for and that they themselves may assume the role of authority in this. Employing linguistic argumentation in reasoning about language helps them with that substantiation and will improve the quality of their reasoning about language, as is shown by Van Rijt (2020). Students who have come to realise that they can judge these arguments by themselves, will be less inclined to use or rely on authoritative arguments.

Reflective thinking about language thus involves a high degree of divergence in which the perspectives of language intuition, language reality and language norm are explored, arguments in favour of each perspective are evaluated in order to converge to a considered judgment. An important pedagogical principle is that, in order to not disturb students' development of reflective thinking, not only the linguistic sources should avoid presenting the language norm as a preferred variant, teachers should also move their authority out of the centre of the learning task (see also Bendixen, 2004) and focus on scaffolding students' thinking on (meta-)strategic levels.

7.3.5 Conclusion

This dissertation sheds new light on the development of reflective thinking about language, and consequently on the development of linguistic expertise, as a result of applying linguistic sources in the classroom. The new insights are added in the yellow and green boxes to Figure 2. This figure is an elaboration of the figure that was discussed in Chapter 1.

The yellow annotation to 'linguistic sources' expresses that a collection of multiple *conflicting* linguistic sources in which the authority is absent is an important starting point for creating the uncertainty, that stimulates the onset of divergent thinking by students. This uncertainty also requires that teachers 'release control' of cognitive outcomes to a certain extent in favor of exploring multiple perspectives. This is expressed by the yellow annotation to 'uncertainty'.

The yellow annotation to 'linguistic reasoning' expresses that students' divergent and evaluative reasoning can be fostered by strategic scaffolding to visualise the contradictory linguistic arguments in multiple linguistic sources. Strategic scaffolding supports the use of linguistic arguments in students' judgments on linguistic issues, as represented by the top green annotation to 'judgement'.

If students are also given meta-strategic scaffolding, they may realise that viewing a language issue is more than following the prescriptive language rules, but they

can act as an authority themselves and that argumentative consideration is always needed. This is expressed by the yellow annotation at ‘epistemic beliefs’. The bottom green annotation at ‘judgement’ expresses that meta-strategic scaffolding stimulates students to use non-authoritative arguments in their judgment on a linguistic issue.

Based on our theoretical framework and the studies in this dissertation, we conclude that supporting students to substantiate their judgments with linguistic arguments from different perspectives, is an important approach to stimulate the development of reflective thinking and linguistic awareness. And therewith, an important approach to foster the development of linguistic expertise.

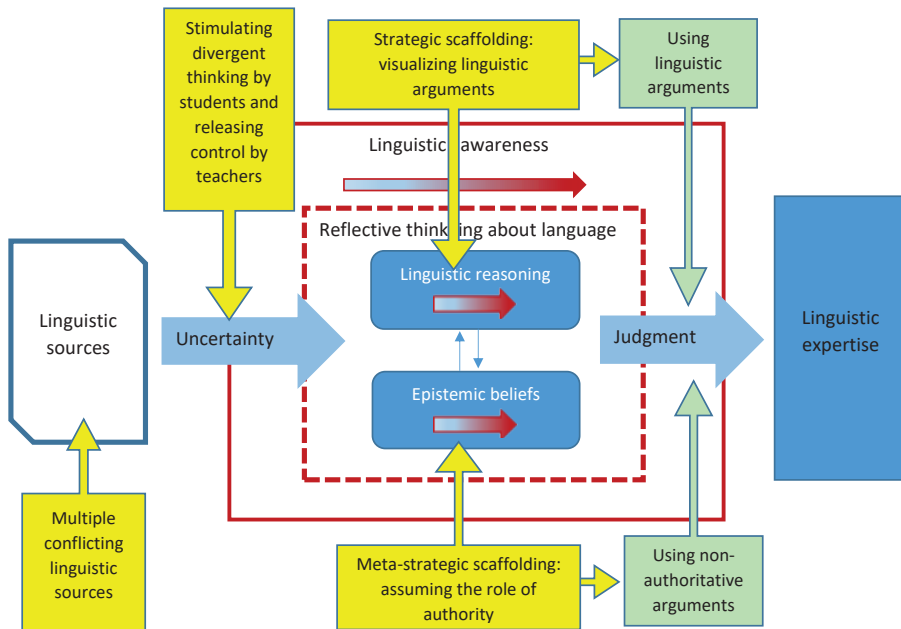


Figure 2. Development of linguistic expertise by using linguistic sources, revisited

7.4 General limitations and further research

At the end of this dissertation, we formulate limitations concerning the dissertation as a whole and make suggestions for further research.

The first limitation concerns the target group of students in our studies. The interventions in this dissertation were conducted in the 11th grade of pre-university education. The reason for the choice of this educational level was that literature suggests that reflective thinking starts to develop in the final stages of high school education (Mierwald et al., 2017; King 2007; King & Kitchener, 1994). Also, teachers in Chapter 2 indicated that reflective thinking about language issues fits higher educational levels better than vocational levels, and also fits the upper grades better than the lower grades. However, conducting the studies only in the 11th grade also limits the results of these studies. The question remains whether forms of reflective thinking about language can already be fostered in lower levels of pre-university education or in vocational education. Research by Zohar and Ben-David (2008) indicated that low achieving 8th grade students benefitted from lessons on meta-strategic knowledge in biology. Further research should explore whether this is also the case for reflective thinking about language issues.

Another point concerns the use of linguistic sources with students of lower levels of pre-university education or vocational education. Studies in this dissertation revealed that 11th graders had difficulties with interpreting authentic linguistic sources, but they were able to compare multiple conflicting sources through scaffolding. In further research, it can be explored whether students of lower levels can also be supported with similar scaffolding to consult multiple conflicting linguistic sources.

A third limitation of the studies in this dissertation is the limited number of teachers that were involved in the intervention. These teachers voluntarily participated and were interested in using linguistic sources in grammar education and developing students' reflective thinking. Working with uncertainty in the classroom asks for teachers who dare to deal with such an educational challenge (Zohar, 2010). It would be interesting to investigate how this challenge can be promoted among teachers who are less inclined to focus on these educational goals. This dissertation suggests that working with (meta-)strategic scaffolds that explicate how to deal with multiple conflicting linguistic sources can support teachers in this challenge. Further research should find out whether these scaffolds are also successful when used in the classroom by teachers who are more inclined to teach convergent thinking than to explore grammar issues divergently.

A fourth limitation of this dissertation concerns the length of the interventions. The intervention in Chapter 5 and 6 in this dissertation lasted a maximum of three lessons. Despite this limited scope, we did see the beginnings of reflective thinking in a number of students. Previous research by Barzilai and Ka'adan (2019) showed that three lessons were sufficient for epistemic growth. It should be noted that the participants in their study were highly motivated 9th grade students, and the lessons took place in a laboratory setting. Research by Zohar and colleagues (Zohar & Ben David, 2008) reported on longer interventions of 30 lessons to teach students meta-strategic skills for higher-order thinking activities. Although research by Barzilai and Ka'dan (2019) and Zohar et al. (2008) did not concern grammar education, it would be interesting to get more insight into the influence of the length of interventions on developing students reflective thinking about grammar.

Furthermore, a fifth limitation of this dissertation is that two studies were only conducted in the Netherlands (the teachers' questionnaire in Chapter 2 and the experimental study of Chapter 6), one study was only conducted in Flanders (Dutch-speaking Belgium) (Chapter 5), and two studies were conducted both in the Netherlands and Flanders (Chapter 3 and the exploratory study of Chapter 6). Although the grammar curriculum in these two countries differ, we did not encounter major differences between students and teachers. However, it would be interesting to investigate in further research whether (meta-)strategic scaffolding in the last study of Chapter 6 will also reveal comparable results when conducted in Flanders.

Finally, measuring epistemic beliefs is not easy (Hofer, 2016; Stoel et al., 2017). In Chapter 3, an attempt was made to measure students' epistemic beliefs about grammar. It was concluded that this instrument provided a promising tool for measuring epistemic beliefs. However, attempts for measuring the *development* of students' epistemic beliefs in the later studies could not support this conclusion. This might be due to several factors. First, as was mentioned above, the interventions in Chapter 5 and 6 might have been too short for a clear development of students' underlying epistemic beliefs. Second, the population of participants in these studies might have been too small for finding reliable results. Third, the items might have still been too complicated for the students (see Muis (2004) for comparable outcomes when measuring epistemic beliefs about mathematics). Although, the fact that the questionnaire did reveal reliable results for linguistic experts and for the larger sample of students in Chapter 3, indicates that the items were suitable for measuring those beliefs. Finally, it can also be due to 'epistemic wobbling' meaning that the development of epistemic beliefs is not a linear one, but more spiral-like (Bendixen & Rule, 2004; VanSledright & Reddy, 2014; VanSledright & Maggioni, 2016). Although

it turns out to be difficult to come to a valid and reliable questionnaire for measuring epistemic beliefs, the results of Chapter 3 do not only show interesting differences between experts' beliefs and students' beliefs, but they are also in line with theoretical assumptions. Nevertheless, developing a reliable measurement for students' epistemic beliefs in grammar education asks for further research.

7.5 Practical implications

In the Netherlands, the plans for curriculum reform of the school subject Dutch, require students to reason about the relationship between form and meaning of language. Students should gain insight into language and develop their reflection on language variation and language change in order to make choices in language use in different contexts (SLO, 2024). These reforms challenge students to examine language from different perspectives. They should learn how to develop their linguistic awareness and learn to think more like a linguistic expert (Van Rijt, 2024; Wijnands et al., 2021). This direction in educational reform can be observed all over the world, e.g., in Belgium (VFSKO, 2014), the United Kingdom (DfE, 2014), and Australia (ACARA, 2009).

This research started from the assumption that if students in the upper half of pre-university education learn to investigate language from different perspectives using authentic linguistic sources, they would be able to develop their reflective thinking about language (Coppen, 2013). In the lower half of pre-university education, students would have gained sufficient grammatical knowledge to do so. Assignments about language issues would trigger linguistic reasoning and teachers would be able to support their students in this. The various studies in this dissertation show that this is not as simple as we initially thought. We found in Chapter 6 that 11th grade students did not reason about language issues but rather searched for the prescriptive language rules. Consulting authentic sources did not automatically stimulate reasoning about language, nor did it support the development of students' reflective thinking. This dissertation shows that more pedagogical support is needed when it comes to using linguistic sources in the classroom to make students think more reflectively about language issues from a research disposition attitude.

7.5.1 Multiperspectivism

During the research in this dissertation, it became increasingly clear that students cling to prescriptive language rules, which in itself is good when it comes to formal writing or speaking. However, when reasoning about language, this adherence to

prescriptive language rules blocks students from exploring other perspectives as well. In developing linguistic awareness, it is important for students to become aware of their own language intuitions. It is therefore recommended, when investigating a language issue, for students to first reflect on the question ‘what do I think myself?’.

Using linguistic sources in the classroom is certainly the key when it comes to teaching students to think about a language issue from multiple perspectives. Primary sources reflect language reality, secondary sources mainly reason about natural variants in language reality whether or not in relation to prescriptive language rules or to the language intuitions of the author. In other words, secondary sources model linguistic thinking, although they usually also include the language norm. However, authentic linguistic sources proved unsuitable for teaching students to think about a language issue from a multi-perspective point of view because students could immediately opt for the safe strict norm. It is therefore advisable to initially confront students with simplified secondary sources. As a starting point, students should learn that there are different perspectives on a language issue and that these perspectives can be evaluated equally when reasoning about language. Therefore, we recommend that students first explore a constructed set of several secondary sources, that each take a different point of view on a language issue. This set should at least present a controversy between a source taking a stand for prescribed variant and against the natural variant and a source taking a stand for the natural variant and against the prescribed variant.

Furthermore, scaffolding has been shown to be necessary. When students can visualise the information from the sources in an organiser, students make more use of the linguistic arguments in the sources. The final chapter of this dissertation also showed that practicing evaluating contradictory information in an analogical example from another domain, can make students realise that they can explore and evaluate different perspectives themselves in order to arrive at a reasoned judgment (see for comparable recommendations in other domains Collins et al., 1991; Zohar, 2012).

This dissertation shows, that it is important that grammar lessons provide more room for divergent reasoning about language (Dielemans & Coppen, 2020; Van Rijt, 2024). If grammar teaching keeps insisting on the convergent reasoning of arriving at the correct answer that goes back to the prescriptive language rules, students will not feel encouraged to also investigate their own language intuitions and language reality. In that case, the analysis of language remains a well-structured problem for students, while the analysis of language is inherently ill-structured (Coppen, 2010; Coppen et al., 2019; Dielemans & Coppen, 2020; Van Rijt, 2020).

7.5.2 Reflective thinking about language

The studies in this dissertation indicate that the development of reflective thinking about language takes time and proceeds at each students' own pace. Literature also shows that stacking success experiences contributes to the development of reflective thinking (Zohar, 2012). Moreover, the development of reflective thinking is not a linear development but a more spiral-like development (Bendixen & Rule, 2004; VanSledright & Reddy, 2014; VanSledright & Maggioni, 2016). This means that students in the classroom may be at different levels of reflection, knowledge and skills. The educational situation should do justice to those differences.

The pedagogical template for grammar teaching in Chapter 4 can support teachers in designing materials for students to reason about language at different levels in the classroom. By having students work in groups, students also learn from each other how positions on language issues can differ. By having students start with their own language intuitions when investigating a language issue and comparing it to their peers' language intuitions, they may already come to the discovery that language reality consists of different variants or that their language intuitions differ from the known prescriptive language rules. After this observation, different linguistic sources can be used. While primary sources show the variants used in language reality, secondary sources show how to reason about different variants. In these secondary sources, students can read arguments for and against a particular variant. Based on the information, students can then make their own judgment. When students do not blindly rely on the prescribed language rules but discover for themselves that there can be different ways of thinking about language variants and they can take positions on this themselves, the first step toward reflective thinking about language is taken.

The role of the teacher is important in this regard. Teachers assuming the role of authority may hinder reflective thinking by students. Therefore, it is important that the teacher takes a more coaching role and is more oriented to (meta-)strategic support and feedback. The triggering questions from Chapter 4, being *Ok, so what does this mean?* and *Ok, how does this compare to?* can help teachers leave the thinking to the students. Similarly, the scaffolding questions from Chapter 6 on reliability, the perspective from which the issue is reasoned, etc. are questions that the teacher can ask, so that the student can come to a point of view on their own. Moreover, it is highly recommended to occasionally conduct lessons like the TOGA lesson (Chapter 6) so that students not only experience that they themselves can take on the role of authority, but also experience what it takes to do so when examining a language issue. By exploring the language issue together with the students the teacher can model how language issues can be explored (Collins et al., 1991; Zohar, 2012). Teachers should share their thinking about language

with students and preferably also share how language experts think about language (Van Rijt, 2024). To facilitate teachers to work on reflective thinking in the classroom teacher training is recommended (Mathis & Parkis, 2020; Zohar, 2012).

Literature provides many suggestions how teachers can develop their skills in teaching more divergent and subsequently more evaluative thinking in the classroom. It is recommended, as was done in Chapter 5, to form professional learning communities to work together on reflective thinking in the classroom (Bendixen & Rule, 2004). In our study, the choice of conducting a Lesson Study for this purpose proved successful because it provided a community where teachers could explore, try out and reflect, and a knowledgeable other brought in theoretical understanding and a well-founded template to develop assignments on different levels of reflective thinking and different stages of cognitive learning. Also, we maintain that in-service training in professional learning communities can help teachers to overcome the uncertainty paradox through developing their own reflective thinking about language. Finally, there is also a task for teacher education programmes to support prospective teachers in their knowledge of linguistic concepts, their own development of reflective thinking about language and the application in school practice.

7.6 Finally

Studies in this dissertation took place in the upper half of pre-university education. However, educational reforms in the Netherlands prescribe working on language awareness already in lower grades and school levels as well. I strongly believe that other grades and school levels could benefit from working with linguistic sources. In traditional grammar lessons students do not explore their own language intuitions when a language issue is addressed, but awareness of how their language intuitions relate to a grammar rule can support initial development of language awareness. Similarly, reading simple linguistic sources can already set students on the path of reasoning about language issues. The earlier this way of working on language awareness starts, the more time students have to develop their reflective thinking and linguistic awareness, so that grammar/language education is no longer about what is right or wrong, but about how language works and about the choices individuals can make for form and meaning in a given context. Subsequent tertiary education can then continue this development toward linguistic expertise. In teacher training programs, the knowledge, skills and insights on this point can also be further developed so that future teachers can apply multi-perspective reflective thinking about language in the classroom from a research disposition attitude.



References

- ACARA (Australian Curriculum, Assessment and Reporting Authority). (2009). *Framing English*. Sydney: ACARA.
- ALA [Association for Language Awareness]. (n.d.). *About*. Retrieved July 25, 2021, from https://www.languageawareness.org/?page_id=48
- Alderson, J., & Hudson, R. (2013). The metalinguistic knowledge of undergraduate students of English language or linguistics. *Language Awareness* 22(4), 320-337. <https://doi.org/10.1080/09658416.2012.722644>
- Alexander, P. A. (2003). The Development of expertise: The journey from acclimation to proficiency. *Educational Researcher*, 32(8), 10-14.
- Alexander, P. A. (2005). Teaching towards expertise. In P. Tomlinson, J. Dockrell, & P. Winne (Eds.), *Pedagogy--Teaching for learning* (pp. 29-45). British Psychological Society.
- Allan, K. (2007). *The Western classical tradition in linguistics* (2nd ed.). Equinox Publishing.
- Anderson, L., & Krathwohl, D. (Eds.), (2001). *A taxonomy for learning, Teaching and Assessing: A revision of Bloom's taxonomy of educational objectives*. Longman.
- Andrews, R. (2010). Teaching sentence-level grammar for writing: The evidence so far. In T. Locke (Ed.), *Beyond the grammar wars. A resource for teachers and students on developing language knowledge in the English/literacy classroom* (pp. 91-108). Routledge.
- Andrews, R., Torgerson, C., Beverton, S., Freeman, A., Locke, T., Low, G., Robinson, A., Zhu, D. (2006). The effect of grammar teaching on writing development. *British Educational Research Journal*, 32(1), 39-55.
- Barzilai, S. & Ka'dan, I. (2017). Learning to integrate divergent information sources: The interplay of epistemic cognition and epistemic metacognition. *Metacognition Learning*, 12, 193-232. <https://doi.org/10.1007/s11409-016-9165-7>
- Barzilai, S., & Weinstock, M. (2015). Measuring epistemic thinking within and across topics: A scenario-based approach. *Contemporary Educational Psychology* 42, 141-158. <https://doi.org/10.1016/j.cedpsych.2015.06.006>
- Barzilai, S., Mor-Hagani, S., Zohar, A. R., Shlomi-Elouz, T., & Ben-Yishai, R. (2020). Making sources visible: Promoting multiple document literacy with digital epistemic scaffolds. *Computers & Education*, 157, 103980. <https://doi.org/10.1016/j.compedu.2020.103980>
- Ben-David, A., & Zohar, A. (2009). Contribution of meta-strategic knowledge to scientific inquiry learning. *International Journal of Science Education*, 31(12), 1657-1682. <https://doi.org/10.1080/09500690802162762>
- Bendixen, L.D. (2002). A proces model of epistemic belief change. In B.K. Hofer & P.R. Pintrich (Eds.), *Personal epistemology. The psychology of beliefs about knowledge and knowing* (pp. 191-206). Lawrence Erlbaum Associates Publishers.
- Bendixen, L.D. (2016). Teaching for epistemic change in elementary classrooms. In J.A. Green, W.A. Sandoval, & I. Bråten (Eds.), *Handbook of epistemic cognition* (pp. 281-299). Routledge.
- Bendixen, L.D., & Rule, D. C. (2004). An integrative approach to personal epistemology: A guiding model. *Educational Psychologist*, 39(1), 69-80. https://doi.org/10.1207/s15326985ep3901_7
- Berry, R. (1997). Teachers' awareness of learners' knowledge: The case of metalinguistic terminology. *Language Awareness*, 6(2-3), 136-146. <https://doi.org/10.1080/09658416.1997.9959923>
- Berry, R. (2015). Grammar myths. *Language Awareness*, 24(1), 15-37. <https://doi.org/10.1080/09658416.2013.873803>
- Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher Education*, 32, 347-364. <https://doi.org/10.1007/BF00138871>
- Bloom, B. (Ed.), (1956). *Taxonomy of educational objectives: the classification of educational goals. Handbook 1: cognitive domain*. McKay.

- Boivin, M.-C. (2018). A review of the current empirical research on grammar instruction in the francophone regions. *L1-Educational Studies in Language and Literature*, 17, 1-48. <https://doi.org/10.17239/L1ESLL-2018.18.04.03>
- Boivin, M.-C., X. Fontich, Funke, R., García-Folgado, M. J., Myhill, D. (2018). Working on grammar at school in L1 education: Empirical research across linguistic regions. Introduction to the special issue. [Special Issue]. *L1-Educational Studies in Language and Literature*, 18, 1-6. <https://doi.org/10.17239/L1ESLL-2018.18.04.01>
- Bonset, H., & Hoogeveen, M. (2010). *Taalbeschouwing. Een inventarisatie van empirisch onderzoek in basis- en voortgezet onderwijs*. SLO.
- Bonset, H., & Rijlaarsdam, G. (2004). Mother-tongue education (L1) in the learning-to-learn paradigm: Creative redevelopment of learning materials. *L1-Educational Studies in Language and Literature* 4, 35-62. <https://doi.org/10.1023/B:ESLL.0000033848.96679.e6>
- Booij, G.E. (2019). Compounds and multi-word expressions in Dutch. In B. Schlücker (Ed.), *Complex lexical units: compounds and multiword expressions* (pp. 95-126). De Gruyter. <https://doi.org/10.1515/9783110632446-004>
- Borg, S. (2003). Teacher cognition in grammar teaching: A literature review. *Language Awareness*, 12 (2), 96-108. <https://doi.org/10.1080/09658410308667069>
- Borg, S. (2011). The impact of in-service education on language teachers' beliefs. *System* 39(3), 370-380. <https://doi.org/10.1016/j.system.2011.07.009>
- Bowen, G. (2006). Grounded theory and sensitizing concepts. *International Journal of Qualitative Methods* 5(3), 12-23. <https://doi.org/10.1177/160940690600500304>
- Bråten, I., Ferguson, L., Anmarkrud, Ø., & Strømsø, H. (2013). Prediction of learning and comprehension when adolescents read multiple texts: The roles of word-level processing, strategic approach, and reading motivation. *Reading and Writing*, 26(3), 321-348. <https://doi.org/10.1007/s11145-012-9371-x>
- Bresnan, J., Asudeh, A., Toivonen, I., & Wechsler, S. (2016). *Lexical-functional syntax* (2nd edition). Wiley-Blackwell.
- Britt, M. A., & Rouet, J.-F. (2012). Learning with multiple documents: Component skills and their acquisition. In J. R. Kirby & M. J. Lawson (Eds.), *Enhancing the quality of learning: Dispositions, instruction, and learning processes* (pp. 276-314). Cambridge University Press.
- Broekhuis, H. (2016). Syntax of Dutch. The data set. *NT*, 21(2), 297-327. <https://doi.org/10.5117/NEDTAA2016.2.BROE>
- Broekhuis, H., Corver, N., & Vos, R. (2015). *The Syntax of Dutch: Verbs and verb phrases. Part 1*. Amsterdam University Press. <https://doi.org/10.5117/9789089647306>
- Bürkner, P.-C. (2017). brms: An R package for bayesian Multilevel models using stan, 08/ 29 Journal of Statistical Software, 80(1), 1-28. <https://doi.org/10.18637/jss.v080.i01>
- Camps, A. (2014). Metalinguistic activity in language learning. In T. Ribas, X. Fontich, and O. Guasch (Eds.), *Grammar at school. Research on metalinguistic activity in language education* (pp. 25-41). Brussels: Peter Lang.
- Camps, A., & Fontich, X. (2019). Teachers' concepts on the teaching of grammar in relation to the teaching of writing in Spain: A case study. *L1-educational studies in language and literature*, 19, 1-36. <https://doi.org/10.17239/L1ESLL-2019.19.02.02>
- Carpenter, B., Gelman, A., Hoffman, M. D., Lee, D., Goodrich, B., Betancourt, M., Brubaker, M. A., Guo, J., Li, P., & Riddell, A. (2017). Stan: A Probabilistic Programming Language. *Journal of statistical software*, 76, 1. <https://doi.org/10.18637/jss.v076.i01>
- Carter, R. (1982). *Linguistics and the Teacher*. London and New York: Routledge.

- Chen, H., & Myhill, D. (2016). Children talking about writing: Investigating metalinguistic understanding. *Linguistics and Education*, 35, 100-108. <https://doi.org/10.1016/j.linged.2016.07.004>
- Chin, C., & Chia, L.-G. (2006). Problem-based learning: Using ill-structured problems in biology project work. *Science Education*, 90(1), 44-67. <https://doi.org/10.1002/sce.20097>
- Chinn, C. A., Rinehart, R. W., & Buckland, L. A. (2014). Epistemic cognition and evaluating information: Applying the air model of epistemic cognition. In D. Rapp & J. Braasch (Eds.), *Processing inaccurate information* (pp. 425-454). MIT Press.
- Chomsky, N. (1965). *Aspects of the theory of syntax*. MIT Press.
- Christie, F. (2010). The "Grammar Wars" in Australia. In T. Locke (Ed.), (2010). *Beyond the grammar wars. A resource for teachers and students on developing language knowledge in the English/literacy classroom* (pp. 55-72). Routledge.
- Clark, U. (2010). The problematics of prescribing grammatical knowledge: The case in England. In T. Locke (Ed.), *Beyond the grammar wars. A resource for teachers and students on developing language knowledge in the English/literacy classroom* (pp. 38-54). Routledge.
- Colleman, T., De Caluwe, J., Haeseryn, W., Boogaart, R., Landsbergen, F. & Van Hoorde, J. (2021). Over de Algemene Nederlandse Spraakkunst. Algemene Nederlandse Spraakkunst. <https://e-ans.ivdnt.org/over>.
- Collins, A., Brown, J. S., & Holum, A. (1991). Cognitive apprenticeship: Making thinking visible. *American Educator*, 15(3), 6-11, 38-46.
- Coppen, P.-A. (2009). *Leren Tasten in Het Duister*. Inaugurele rede. Radboud University.
- Coppen, P.-A. (2010a). Grammatica: Waar gaat dat eigenlijk over? In S. Vanhooren & A. Mottart (Eds.), *Vierentwintigste conferentie van Het Schoolvak Nederlands* (pp. 174-182). Academia Press.
- Coppen, P.-A. (2010b). Taal is een rommeltje. In H. Hulshof & T. Hendrix (Eds.), *Taalkunde en het schoolvak Nederlands* (pp. 26-28). VLLT.
- Coppen, P.-A. (2011a). Emancipatie van het grammaticaonderwijs. *Tijdschrift Taal*, 2(3), 30-33.
- Coppen, P.-A. (2011b). Grammatica is een werkwoord. In S. Vanhooren & A. Mottart (Eds.), *Vijfentwintigste conferentie van Het Schoolvak Nederlands* (pp. 222-228). Academia Press.
- Coppen, P.-A. (2012a, 12 januari). Linguïstisch miniatuurtje: Iedereen minacht de taal. *Neerlandistiek. Online tijdschrift voor taal- en letterkunde*. Retrieved from <http://www.neerlandistiek.nl>
- Coppen, P.-A. (2012b). Sturen zonder handen. In S. Vanhooren & A. Mottart (Eds.), *Zesentwintigste conferentie van Het Schoolvak Nederlands* (pp. 207-213). Academia Press.
- Coppen, P.-A. (2013). Tegen het leed dat grammatica heet. In S. Vanhooren & A. Mottart (Eds.), *Zevenentwintigste conferentie onderwijs Nederlands* (pp. XXXIV-XXXIX). Academia Press.
- Coppen, P.-A., Van Rij, J., Wijnands, A. & Dielemans, R. (2019). Vakdidactisch onderzoek naar grammaticaonderwijs in Nederland. *Tijdschrift voor Nederlandse Taal- en Letterkunde*, 135(2), 85-99, <https://hdl.handle.net/2066/206>
- Corbin, J., & Strauss, A. (2015). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Sage.
- Cornips, L. (2001). Over inherente normen binnen de eigen groep. Hun doen allemaal van die rare woorden, weet je. *Taal en Tongval*, 52, 47-60.
- Cosson, R. (2007). Mother Tongue Education in Brazil: A battle of two worlds. *L1-Educational Studies in Language and Literature*, 7(1), 37-52. <https://doi.org/10.17239/L1ESLL-2007.07.01.04>
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Sage Publications, Inc.

- Cropley, A. (2006). In praise of convergent thinking. *Creativity Research Journal*, 18, 391-404. https://doi.org/10.1207/s15326934crj1803_13
- Curriculum.nu (2019). *Conceptvoorstellen leergebied Nederlands*, 2019.
- De Hoop, H. (2016). Woordvolgordevariatie: theorie versus empirie? *Nederlandse Taalkunde*, 21, 275-284. <https://doi.org/10.5117/NEDTAA2016.2.HOOP>
- De Hoop, H. (2020). Het verlies van een persoonlijk voornaamwoord. Waarom hun straks geen *hun* meer zeggen. *Nederlandse Taalkunde* 25, 355-362.
- De Vries, S., Verhoef, N., & Goei, S.L. (2016). *Lesson study: een praktische gids voor het onderwijs*. Garant.
- De Wilde, T. (2019). Over taalbewustzijn en taalvariatie. *Taalideologie bij docenten Nederlands aan Europese universiteiten*. *Lage Landen Studies* 12. Academia Press.
- Delarue, S. (2016). *Bridging the policy-practice gap : How Flemish teachers' standard language perceptions navigate between monovarietal policy and multivarietal practice*. (Doctoral Dissertation). Ghent University, Ghent.
- Denham, K. (2020). Positioning students as linguistic and social experts: Teaching grammar and linguistics in the United States. *L1-Educational Studies in Language and Literature*, 20, 1-16. <https://doi.org/10.17239/L1ESLL-2020.20.03.02>
- Denham, K., & Lobeck, A. (2010). *Linguistics at schools. Language awareness in primary and secondary education*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511770791>
- Depaepe, F., De Corte, E., & Verschaffel, L. (2016). Mathematical epistemological beliefs. In J.A. Green, W.A. Sandoval, & I. Bråten (Eds.). *Handbook of epistemic cognition* (pp. 147-164). Routledge.
- Derewianka, B. (2012). Knowledge about language in the Australian curriculum: English. *Australian Journal of Language and Literacy*, 35(1), 127-146.
- Derewianka, B., & Jones, P. (2010). From traditional grammar to functional grammar: Bridging the divide. *NALDIC Quarterly*, 9(1), 6-17.
- Dewey, J. (1933). *How we think: A restatement of the relation of reflective thinking to the reflective process*. Heath and Company.
- DfE (Department for Education) (2014) *The national curriculum in England: Key stages 3 and 4 framework document*. Retrieved February 12, 2024, from <https://www.gov.uk/government/publications/national-curriculum-in-england-secondary-curriculum>
- DfE (Department for Education) (2014). *The National Curriculum in England: English programmes of study*. London: DfE. Retrieved April 4, 2017, from <https://www.gov.uk/government/publications/national-curriculum-in-england-english-programmes-of-study/national-curriculum-in-england-english-programmes-of-study#key-stage-4>
- Dielemans, R., & Coppen, P. A. (2020). Defining linguistic reasoning: Transposing and grounding a model for historical reasoning to the linguistic domain. *Dutch Journal of Applied Linguistics*, 9(1-2), 182-206. <https://doi.org/10.1075/dujal.19038.die>
- Döring, S. (2020). Shaking students' beliefs about grammar: Some thoughts on the academic education of future language teachers. In A. Trotzke & T. Kupisch (Eds.), *Formal linguistics and language education. New empirical perspectives* (pp. 91-110). Springer. https://doi.org/10.1007/978-3-030-39257-4_5
- Doughty, (2001). Modern Languages in Scotland. *Arts and Humanities in Higher Education*, 10(2), 141-155.
- Elby, A., Macrander, C., & Hammer, D. (2016). Epistemic cognition in science. In J.A. Green, W.A. Sandoval, & I. Bråten (Eds.), *Handbook of epistemic cognition* (pp. 113-127). Routledge.
- Ellis, R. (2008). *The study of second language acquisition* (2nd ed.). Oxford University Press.
- Elsner, D. (2020). Grammar is irrelevant. The role of epistemological beliefs in students' learning succes. In A. Trotzke & T. Kupisch (Eds.), *Formal linguistics and language education. New empirical perspectives* (pp. 69 - 90). Springer. https://doi.org/10.1007/978-3-030-39257-4_5

- Elsner, D. (2021). Knowledge about grammar and the role of epistemological beliefs. *Pedagogical Linguistics*, 2(2), 107-128.
- Ennis, R.H. (2015). Critical thinking: A streamlined conception. In M. Davies & R. Barnett (Eds.), *The Palgrave Handbook of Critical Thinking in Higher Education* (pp. 31-47). Palgrave Macmillan. https://doi.org/10.1057/9781137378057_2
- Exley, B., & Mills, K. A. (2012). Parsing the Australian English curriculum: Grammar, multimodality and cross-cultural texts. *The Australian Journal of Language and Literacy*, 35(2), 192-205.
- Ferguson, L. E., Bråten, I., & Strømsø, H. I. (2012). Epistemic cognition when students read multiple documents containing conflicting scientific evidence: A think-aloud study. *Learning and Instruction*, 22(2), 103-120. <https://doi.org/10.1016/j.learninstruc.2011.08.002>
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. 4th ed. Sage.
- Fontich, X. (2014). Grammar and language reflection at school: Checking out the whats and the hows of grammar instruction. In T. Ribas, X. Fontich & O. Guasch (Eds.), *Grammar at School. Research on Metalinguistic Activity in Language Education* (pp. 255-283). Peter Lang.
- Fontich, X. (2016). L1 grammar instruction and writing: Metalinguistic activity as a teaching and research focus. *Language and Linguistics Compass*, 10(5), 238-254. <https://doi.org/10.1111/lnc3.12184>
- Fontich, X., & Camps, A. (2014). Towards a rationale for research into grammar teaching at schools. *Research Papers in Education*, 29(5), 598-625. <https://doi.org/10.1080/02671522.2013.813579>
- Fontich, X., & García-Folgado, M.J. (2018). Grammar instruction in the Hispanic area: The case of Spain with attention to empirical studies on metalinguistic activity [Special Issue]. *L1-Educational Studies in Language and Literature*, 18, 1-39. <https://doi.org/10.17239/L1ESLL-2018.18.04.02>
- French, R. (2010). Primary school children learning grammar: Rethinking the possibilities. In T. Locke (Ed.), *Beyond the grammar wars. A resource for teachers and students on developing language knowledge in the English/literacy classroom* (pp. 206-229). Routledge.
- Funke, R. (2018). Working on grammar at school: empirical research from German-speaking regions. Contribution to a special issue Working on Grammar at School in L1-Education: Empirical Research across Linguistic Regions. *L1-Educational Studies in Language and Literature*, 18, 1-39. <https://doi.org/10.17239/L1ESLL-2018.18.04.01>
- Gartland, L., & Smolkin, B. (2015). The histories and mysteries of grammar instruction. *The Reading Teacher*, 69(4), 391-399. <https://doi.org/10.1002/trtr.1408>
- Gelman, A. (2020). Additional topics in causal inference. In A. Vehtari, A. Gelman, & J. Hill (Eds.), *Regression and other stories* (pp. 421-454). Cambridge University Press. <https://doi.org/10.1017/9781139161879.022>.
- Gelman, A., Carlin, J. B., Stern, H. S., Dunson, D. B., Vehtari, A., & Rubin, D. B. (2013). Bayesian data analysis (3rd ed.). Chapman and Hall/CRC. <https://doi.org/10.1201/b16018>
- Gelman, A., Simpson, D., & Betancourt, M. (2017). The prior can often only be understood in the context of the likelihood. *Entropy*, 19(10), 555. <https://www.mdpi.com/1099-4300/19/10/555>
- Genootschap Onze Taal. (n.d.). *Taalloket*. Retrieved July 16, 2024, from <https://www.onzetaal.nl/taalloket>.
- Giovanelli, M. (2015). Becoming an English language teacher: Linguistic knowledge, anxieties and the shifting sense of identity. *Language and Education*, 29(5), 416-429. <https://doi.org/10.1080/09500782.2015.1031677>
- Giovanelli, M. (2016). Developing beginning teachers' linguistic awareness: Issues and practice in Initial Teacher Education. In M. Giovanelli & D. Clayton (Eds.), *Knowing about language. Linguistics and the secondary English classroom* (pp. 186-197). Routledge. <https://doi.org/10.4324/9781315719818>
- Giovanelli, M., & Clayton, D. (Eds.), (2016). *Knowing about language: Linguistics and the secondary English classroom*. Routledge. <https://doi.org/10.4324/9781315719818>

- Graham, S., & Perin, D. (2007). A Meta-Analysis of Writing Instruction for Adolescent Students. *Journal of Educational Psychology*, 99(3), 445-476. <https://doi.org/10.1037/0022-0663.99.3.445>
- Graus, J. (2018). *Teacher cognitions on form-focused instruction: An explanatory sequential study of Dutch pre-Service and in-Service EFL student teachers*. (Doctoral dissertation). Nijmegen: Radboud Universiteit.
- Graus, J., and P.-A. Coppen (2015). Defining grammatical difficulty: A student teacher perspective. *Language Awareness*, 24(2), 101-122. <https://doi.org/10.1080/09658416.2014.994639>
- Haeseryn, W., Romijn, K., Geerts, G., Rooij, J. de, & Van den Toorn, M.C. (1997). *Algemene Nederlandse Spraakkunst*. Martinus Nijhoff uitgevers/Wolters Plantyn.
- Halliday, M., & Webster J. (2016). *Aspects of language and learning*. Berlin & Heidelberg: Springer-Verlag. <https://doi.org/10.1007/978-3-662-47821-9>
- Havekes, H. (2015). *Knowing and doing History. Learning historical thinking in the classroom*. (Doctoral dissertation). Nijmegen: Radboud University Nijmegen
- Havekes, H., Coppen, P.-A., Luttenberg, J., & Van Boxtel, C. (2012). Knowing and doing history: A conceptual framework and pedagogy for teaching historical contextualization. *International Journal of Historical Learning, Teaching and Research*, 11(1), 72-93.
- Havekes, H., Van Boxtel, C., Coppen, P.-A., & Luttenberg, J. (2017). Stimulating historical thinking in a classroom discussion: The role of the teacher. *Historical Encounters: A journal of historical consciousness, historical cultures, and history education*, 4(2), 71-93.
- Hendrix, T., & Hulshof, H. (2010). *Taalkunde en het schoolvak Nederlands*. VLLT.
- Herder, A., Van Silfhout, G., & Jansen, I. (2021). *Startnotitie Nederlands. Bovenbouw voortgezet onderwijs*. SLO.
- Hofer, B.K. (2016). Epistemic Cognition as a Psychological Construct: Advancements and Challenges. In J.A. Green, W.A. Sandoval, & I. Bråten (Eds.), *Handbook of epistemic cognition* (pp. 19-38). Routledge.
- Hofer, B.K. (2002). Personal epistemology as a psychological and educational construct: An introduction. In B.K. Hofer & P.R. Pintrich (Eds.), *The psychology of beliefs about knowledge and knowing* (pp. 3-14). Lawrence Erlbaum Associates, Inc. <https://doi.org/10.4324/9781410604316>
- Hofer, B. K., & Pintrich, P. R. (1997). The development of epistemological theories: Beliefs about knowledge and knowing and their relation to learning. *Review of Educational Research*, 67, 88-140. <http://dx.doi.org/10.3102/00346543067001088>
- Holt-Reynolds, D. (1992). Personal History-Based Beliefs as Relevant Prior Knowledge in Course Work. *American Educational Research Journal*, 29(2), 325-349. <https://doi.org/10.3102/00028312029002325>
- Honda, M. (1994). *Linguistic Inquiry in the Science Classroom: "It is science, but its's not like a science problem in a book."* (Doctoral dissertation). Harvard University.
- Honda, M., & O'Neil, W. (2008). *Thinking linguistically. A scientific approach to language*. Blackwell Publishing.
- Honda, M., O'Neil, W., & Pippin, D. (2010). On promoting linguistics literacy: Bringing language science to the English classroom. In K. Denham & A. Lobeck (Eds.), *Linguistics at School: Language Awareness in Primary and Secondary Education* (pp. 175-188). Cambridge University Press.
- Huang, F. L. (2017). Conducting multilevel confirmatory factor analysis using R. Retrieved from <http://faculty.missouri.edu/huangf/data/mcfa/MCFA%20in%20R%20HUANG.pdf>
- Hubers, F.C.W., Trompenaars, T., Collin, S., Schepper, K. de, & De Hoop, H. (2019). Hypercorrection as a by-product of Education. *Applied Linguistics*, 41(4), 552-574. <https://doi.org/10.1093/applin/amz001>
- Hudson, R. (1999). Grammar-teaching is dead – NOT! In R. Wheeler (Ed.), *Language alive in the classroom* (pp. 101-112). Greenwood.
- Hudson, R. (2001). Grammar-teaching and writing skills: the research evidence. *Syntax in the Schools*, 17, 1 -6.
- Hudson, R. (2004). Why education needs linguistics (and vice versa). *Journal of Linguistics*, 40, 105-130. <https://doi.org/10.1017/S0022226703002342>

- Hudson, R. (2016). Grammar instruction. In C. A. MacArthur, S. Graham & J. Fitzgerald (Eds.), *Handbook of Writing Research*. Second edition (pp. 288-300). Guilford.
- Hudson, R., & Walmsley, J. (2005). The English patient: English grammar and teaching in the twentieth century. *Journal of Linguistics*, 41(3), 593 - 622. <https://doi.org/10.1017/S0022226705003464>
- Hulshof, H. (2002). *Vormen van taalkennis. Over grammatica, taalbeschouwing en taalkundige vorming in het onderwijs Nederlands*. Inaugurele rede. Leiden University, Leiden.
- Hulshof, H. (2013). Onderzoek Naar Taalkundeonderwijs: Geloof En Empirie. In T. Janssen & T. Van Strien (Eds.), *Neerlandistiek in beeld*. Stichting Neerlandistiek VU.
- Hulshof, H. (2014). De 'triviale' herkomst van het redekundig ontleiden. Uit de geschiedenis van de schoolgrammatica in Nederland. *Levende Talen Magazine*, 101(7), 22-25.
- Jaarsveld, S., Lachmann, T., & Van Leeuwen, C. (2012). Creative reasoning across developmental levels: Convergence and divergence in problem creation, *Intelligence*, 40(2), 172-188. <https://doi.org/10.1016/j.intell.2012.01.002>
- Jansen, F., Hulshof, H., & Van Veen, K. (2019). *Wat is echt de moeite waard om te onderwijzen? Een perspectiefgerichte benadering*. Universiteit Leiden/Rijksuniversiteit Groningen.
- Jones, P., & Chen, H. (2012). Teachers' knowledge about language: issues of pedagogy and expertise. *Australian Journal of Language and Literacy*, 35(2), 147-168.
- Kallioinen, N., Paananen, T., Bürkner, P.C., & Vehtari, A. (2024). Detecting and diagnosing prior and likelihood sensitivity with power-scaling. *Statistics and Computing* 34(1), Article 57. <https://doi.org/10.1007/s11222-023-10366-5>
- Kember, D., McKay, J., Sinclair, K., & Wong, F. K. Y. (2008). A four-category scheme for coding and assessing the level of reflection in written work. *Assessment & Evaluation in Higher Education*, 33(4), 369-379. <https://doi.org/10.1080/02602930701293355>
- Kember, D., Leung, D.Y. P., Jones, A., Loke, A. Y., McKay, J., Sinclair, K., Tse, H., Webb, C., Wong, F.K.Y., Wong, M. & Yeung, E. (2000) Development of a questionnaire to measure the level of reflective thinking. *Assessment & Evaluation in Higher Education*, 25(4), 381-395. <https://doi.org/10.1080/713611442>
- Kienhues, D., Ferguson, L., & Stahl, E. (2016). Diverging information and epistemic change. In J.A. Green, W.A. Sandoval, & I. Bråten (Eds.), *Handbook of epistemic cognition* (pp. 318-330). Routledge.
- King, P.M. (2009). Principles of development and developmental change underlying theories of cognitive and moral development. *Journal of College Student Development*, 50(6), 597-620. <https://doi.org/10.1353/csd.0.0104>
- King, P.M., & Kitchener, K.S. (1994). *Developing reflective judgement: Understanding and promoting intellectual growth and critical thinking in adolescents and adults*. Jossey-Bas Publishers.
- King, P.M., & Kitchener, K.S. (2002). The reflective judgment model: Twenty years of research on epistemic cognition. In B.K. Hofer & P.R. Pintrich (Eds.), *Personal epistemology: The psychology of beliefs about knowledge and knowing* (pp. 37-61). Lawrence Erlbaum.
- King, P.M., & Kitchener, K.S. (2004). Reflective Judgement: Theory and Research on the Development of Epistemic Assumptions Through Adulthood. *Educational Psychologist*, 39(1), 5-18. https://doi.org/10.1207/s15326985ep3901_2
- Kitchener, K.S. (1983). Cognition, metacognition, and epistemic cognition: A three-level model of cognitive processing. *Human Development*, 26, 222-232.
- Knop, L. (2016). Taal telt! In S. Vanhooren & A. Mottart (Eds.), *Dertigste conferentie onderwijs Nederlands* (pp. 264-266). Skribis.
- Knop, L., & Van Laere, A. (2017). Taal actief!. In S. Vanhooren & A. Mottart (Eds.), *Drieëndertigste conferentie onderwijs Nederlands* (pp. 246-248). Skribis.

- Kolln, M., & Hancock, C. (2005). The story of English grammar in United States schools. *English Teaching: Practice and Critique* 4(3), 11-31.
- Koninklijke Nederlandse Akademie van Wetenschappen. (2013). *Digitale geletterdheid in het voortgezet onderwijs*.
- Kraak, A. (2006). *Homo loquens en homo scribens. Over natuur en cultuur bij de taal*. Amsterdam: Amsterdam University Press. <https://doi.org/10.5117/9789053569542>
- Kuhn, D. (1991). *The skills of argument*. New York, NY: Cambridge University Press
- Kuhn, D., Cheney, R., & Weinstock, M. (2000). *The development of epistemological understanding*. *Cognitive Development* 15(3), 309-328. [https://doi.org/10.1016/S0885-2014\(00\)00030-7](https://doi.org/10.1016/S0885-2014(00)00030-7)
- Kuhn, D., & Weinstock, M. (2002). What is epistemological thinking and why does it matter? In B.K. Hofer & Pintrich, P.R. (Eds.), *Personal epistemology: the psychology of beliefs about knowledge and knowing* (pp. 121-144). Erlbaum.
- Lee, C. D., Goldman, S.R., Levine, S., & Magliano, J. (2016). Epistemic cognition in literary reasoning. In J.A. Green, W.A. Sandoval, & I. Bråten (Eds.), *Handbook of epistemic cognition* (pp. 165-183). Routledge.
- Lemoine, N. P. (2019). Moving beyond noninformative priors: Why and how to choose weakly informative priors in bayesian analyses, 2019/07/01 *Oikos*, 128(7), 912-928. <https://doi.org/10.1111/oik.05985>
- Levende Talen. (2019). *Advies curriculum Nederlands*. Levende Talen. <https://levendetalen.nl/wp-content/uploads/2019/09/LT-advies-curriculum-Nederlands-2019.pdf>
- Lipman, M. (2003). *Thinking in education. Second edition*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511840272>
- Locke, T. (Ed.) (2010). *Beyond the grammar wars. A resource for teachers and students on developing language knowledge in the English/literacy classroom*. Routledge. <https://doi.org/10.4324/9780203854358>
- Lybaert, C. (2015). De ideologische positie van Algemeen Nederlands in Vlaanderen. De standaardiseringsideologie onder druk? *Taal en Tongval* 67(1), 97-134. <https://doi.org/10.5117/TET2015.1.LYBA>
- Macken-Horarik, M., Love, K., & Horarik, S. (2018). Rethinking grammar in language arts: Insights from an Australian survey of teachers' subject knowledge. *Research in the Teaching of English*, 52(3), 288-316.
- Maggioni, L. (2010). *Studying epistemic cognition in the history classroom: Cases of teaching and learning to think historically*. (Doctoral dissertation). University of Maryland.
- Maggioni, L. Alexander, P., & VanSledright B. (2004). At a crossroad? The development of epistemological beliefs and historical thinking. *European Journal of School Psychology*, 2(1-2), 169-197.
- Maggioni, L., VanSledright, B., & Alexander, P. (2009). Walking on the borders: A measure of epistemic cognition in history. *The Journal of Experimental Education* 77(3), 187-214. <https://doi.org/10.3200/JEXE.77.3.187-214>
- Mason, L. (2016). Psychological perspective on measuring epistemic cognition. In J.A. Green, W.A. Sandoval, & I. Bråten (Eds.), *Handbook of epistemic cognition* (pp. 375-392). Routledge.
- Mathis, C., & Parkes, R. (2020). Historical thinking, Epistemic cognition, and History teacher education. In C.W. Berg & T.M. Christou (Eds.), *The Palgrave Handbook of History and Social Studies Education* (pp. 189-212). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-37210-1_9
- Meesterschapsteam Nederlands (2016). *Manifest Nederlands op school*. <https://nederlands.vakdidactiekgw.nl/>.
- Meesterschapsteam Nederlands (2018). *Visie op de toekomst van het schoolvak Nederlands*. <https://nederlands.vakdidactiekgw.nl/>.
- Meesterschapsteam-Nederlands (2021). *Bewuste geletterdheid in perspectief: kennis, vaardigheden en inzichten*. <https://nederlands.vakdidactiekgw.nl/>.

- Meijerink e.a. (2009). *Over de drempels met taal en rekenen - Hoofdrapport van de Expertgroep Doorlopende Leerlijnen Taal en Rekenen*. Enschede.
- Mercer, N. (2000). *Words and minds: How we use language to think together*. Routledge.
- Mercer, N. (2002). The Seeds of time: Why classroom dialogue needs a temporal analysis. *Journal of the Learning Sciences*, 17(1), 33-59. <https://doi.org/10.1080/10508400701793182>
- Mercer, N. (2005). Sociocultural discourse analysis: analyzing classroom talk as a social mode of thinking. *Journal of Applied Linguistics*, 1, 137-168.
- Mercer, N. (2008). Developing dialogues. In G. Wells & G. Claxton (Eds.), *Learning for life in the 21st: Sociocultural perspectives on the future of education* (pp. 141-153). Blackwell.
- Mezirow, J. (1991). *Transformative dimensions of adult learning*. Jossey-Bass.
- Mierwald, M., Lehman, T., Seiffert, J., & Brauch, N. (2017). Fragebogen auf dem Prüfstand – Ein Beitrag zur Erforschung und Weiterentwicklung eines bestehenden Instruments zur Erfassung epistemologischer Überzeugungen in der Domäne Geschichte. In M. Waldis, & B. Ziegler (Eds.), *Forschungswerkstatt Geschichtsdidaktik 15. Beiträge zur Tagung "geschichtsdidaktik empirisch 15"* (pp. 177-190). Hep, der Bildungsverlag.
- Milroy, J., & Milroy, L. (1999). *Authority in language: Investigating language prescription and standardisation*. Routledge.
- Moesker, M., & Das, H. (2010). Leerlingen stellen vragen aan taal. In H. Hulshof & T. Hendrix (Eds.), *Taalkunde en het schoolvak Nederlands* (pp. 38-41). VLLT.
- Moseley, D., Baumfield, V., Elliott, J., Gregson, M., Higgins, S., Miller, J., & Newton, D.P. (2005). *Frameworks for thinking: A handbook for teaching and learning*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9780511489914>
- Muis, K.R. (2004). Personal epistemology and mathematics: A critical review and synthesis of research. *Review of Educational Research*, 74(3), 317-377. <https://doi.org/10.3102/00346543074003317>
- Muis, K.R. (2007). The role of epistemic beliefs in self-regulated learning. *Educational Psychologist*, 42(3), 173-190. <https://doi.org/10.1080/00461520701416306>
- Muis, K.R., Bendixen L.D., & Haerle, F. C. (2006). Domain-general and domain-specificity in personal epistemology research: Philosophical and empirical reflections in the development of a theoretical framework. *Educational Psychology Review*, 18(3), 3-54. <https://doi.org/10.1007/s10648-006-9003-6>
- Mulder, J. (2011). Grammar in English curricula: Why Should Linguists Care? *Language and Linguistics Compass* 5(12), 835-847. <https://doi.org/10.1111/j.1749-818X.2011.00316.x>
- Myhill, D. (2000). Misconceptions and Difficulties in the Acquisition of Metalinguistic Knowledge. *Language and Education*, 14(3), 151-163. <https://doi.org/10.1080/09500780008666787>
- Myhill, D. (2003). Principled understanding? Teaching the active and passive voice. *Language and Education*, 17(5), 355-370. <https://doi.org/10.1080/09500780308666856>
- Myhill, D.A. (2005). Ways of Knowing: Writing with Grammar in Mind. *English Teaching: Practice and Critique*, 4(3), 77-96.
- Myhill, D.A. (2010). Ways of knowing: grammar as a tool for developing writing. In T. Locke (Ed.), *Beyond the grammar wars. A resource for teachers and students on developing language knowledge in the English/literacy classroom* (pp. 129-148). Routledge.
- Myhill, D.A. (2016). The effectiveness of explicit language teaching: Evidence from the research. In M. Giovanelli & D. Clayton (Eds.), *Linguistics and the Secondary English Classroom* (pp. 36-49). Routledge.
- Myhill, D. (2018). Grammar as a meaning making resource for language development. *L1-Educational studies in Language and Literature*, 18, 1-21. <https://doi.org/10.17239/L1ESLL-2018.18.04.04>

- Myhill, D. (2021). Grammar re-imagined: foregrounding understanding of language choice in writing. *English in Education*, 55(3), 265-278. <https://doi.org/10.1080/04250494.2021.1885975>
- Myhill, D., Jones, S., & Lines, H. (2018). Supporting less proficient writers through linguistically aware teaching. *Language and Education*, 32(4), 333-349.
- Myhill, D., Jones, S., Lines, H., & Watson, A. (2012). Re-thinking grammar: The impact of embedded grammar teaching on students' writing and students' metalinguistic understanding. *Research Papers in Education*, 14(3), 151-163. <https://doi.org/10.1080/02671522.2011.637640>
- Myhill, D., Jones, S., & Watson, A. (2013). Grammar matters: How teachers' grammatical knowledge impacts on the teaching of writing. *Teaching and Teacher Education*, 36, 77-91. <https://doi.org/10.1016/j.tate.2013.07.005>
- Myhill, D., Jones, S., & Wilson, A. (2016). Writing conversations: Fostering metalinguistic discussion about writing. *Research Papers in Education*, 31(3), 23-44. <https://doi.org/10.1080/02671522.2016.1106694>
- Nassaji, H. (2017). Grammar acquisition. In S. Loewen & M. Sato (Eds.), *The Routledge handbook of instructed second language acquisition* (pp. 205-223). Routledge.
- Nassaji, H., & Fotos, S. (2011). *Teaching grammar in second language classrooms: Integrating form-focused instruction in communicative context*. Routledge.
- Nederlandse Taalunie & Instituut voor de Nederlandse Taal. (n.d.). *E-ANS: Elektronische Algemene Nederlandse Spraakkunst*. Retrieved July 16, 2024 from <https://e-ans.ivdnt.org>
- Norwegian Directorate for Education and Training [Utdanningsdirektoratet]. (2019). *Norwegian subject curriculum NOR01-06*. <https://www.udir.no/lk20/nor01-06>
- Paterson, L.L. (2010). Grammar and the English national curriculum. *Language and Education*, 24(6), 473-484. <https://doi.org/10.1080/09500782.2010.495782>
- Perini, M. (2015). *Describing verb valency. Practical and theoretical issues*. New York: Springer. <https://doi.org/10.1007/978-3-319-20985-2>
- Phipps, S., & Borg, S. (2009). Exploring tensions between teachers' grammar teaching beliefs and practices. *System*, 37, 380-390. <https://doi.org/10.1016/j.system.2009.03.002>
- Pinker, S. (2014). *The Sense of Style: The Thinking Person's Guide to Writing in the 21st Century*. Penguin.
- Platform Onderwijs2032 (2016). *Ons onderwijs2032. Eindadvies*. Platform Onderwijs2032.
- Prenger, J., & Pleumeekers, J. (2024). *Definitieve conceptkerndoelen Nederlands. SLO*.
- Quirk, R., Greenbaum, S., Leech, G., & Svartvik, J. (2008). *A comprehensive grammar of the English Language. Twenty-second impression*. Longman.
- R Core Team (2022) R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing, Vienna. <https://www.R-project.org>
- Rättyä, K., Awramiuk, E., & Fontich, X. (2019). What is grammar in L1 education today? *L1-Educational Studies in Language and Literature*, 19, 1-8.
- Reeve, J. (2009). Why Teachers Adopt a Controlling Motivation Style Toward Students and How They Can Become More Autonomy Supportive. *Educational Psychologist*, 44(3), 159-175. <https://doi.org/10.1080/00461520903028990>
- Renkema, J., & Daamen, E. (2016). *Schrijfwijzer Compact. Herziene Editie*. Boom.
- Ribas, T., Fontich, X., & Guasch, O. (Eds.). (2014). *Grammar at school. Research on metalinguistic activity in language education*. Peter Lang.
- Robben, T. (2010). Wetenschappelijke geschiedenis van de syntaxis spreekt leerlingen aan. In H. Hulshof & T. Hendrix (Eds.), *Taalkunde en het schoolvak Nederlands* (pp. 48-50). VLLT.

- Roberts, L. D. (2007). Equivalence of electronic and off-line measures. In R. A. Reynolds, R. Woods, & J. D. Baker (Eds.), *Handbook of research on electronic surveys and measurements* (pp. 97-103). Hershey, PA: Idea Group. <https://doi.org/10.4018/978-1-59140-792-8.ch010>
- Rodgers, C. (2002). Defining reflection: Another look at Dewey and reflective thinking. *Teachers College Record*, 104(4), 842-866. <https://doi.org/10.1111/1467-9620.00181>
- Ryan, R.M., & Deci, E.L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25, 54-67. <https://doi.org/10.1006/ceps.1999.1020>
- Sandoval, W.A. (2016). Disciplinary insights into the study of epistemic cognition. In J.A. Green, W.A. Sandoval, & I. Bråten (Eds.), *Handbook of epistemic cognition* (pp. 184-194). Routledge.
- Sangster, P., Anderson, C., & O'Hara, P. (2013). Perceived and actual levels of knowledge about language amongst primary and secondary student teachers: do they know what they think they know? *Language Awareness*, 22(4), 293-319. <https://doi.org/10.1080/09658416.2012.722643>
- Sawyer, W., & Van den Ven, P.-H. (2007). Starting points. Paradigms in mother tongue education. *L1-Educational Studies in Language and Literature*, 7(1), p. 5-20. <https://doi.org/10.17239/L1ESLL-2007.07.01.06>
- Schmuckler, M. A. (2001). What is ecological validity? A dimensional analysis. *Infancy*, 2(4), 419-436. https://doi.org/10.1207/S15327078IN0204_02
- Seuren, P. (1998). *Western linguistics. An historical introduction*. Oxford: Blackwell Publishers. <https://doi.org/10.1002/9781444307467>
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Houghton, Mifflin and Company.
- Stadtler, M., & Bromme, R. (2014). The content-source integration model: A taxonomic description of how readers comprehend conflicting scientific information. In D. N. Rapp & J. Braasch (Eds.), *Processing inaccurate information: Theoretical and applied perspectives from cognitive science and the educational sciences* (pp. 379-402). MIT Press.
- Stoel, G.L. (2017). *Teaching towards historical expertise. Developing students' ability to reason causality in history* (Doctoral dissertation). University of Amsterdam, Amsterdam.
- Stoel, G.L., Logtenberg, A., & Nitsche, M. (2022). Researching epistemic beliefs in history education: A review. *Historical Encounters*, 9(1), 11-34. <https://doi.org/10.52289/hej9.102>
- Stoel, G., Logtenberg, A, Wansink, B., Huijgen, T., Van Boxtel, C., & Van Drie, J. (2017) Measuring epistemological beliefs in history education: An exploration of naïve and nuanced beliefs. *International Journal of Educational Research*, 83, 120-134. <https://doi.org/10.1016/j.ijer.2017.03.003>
- Stoel, G.L., Van Drie, J.P., & Van Boxtel, C.A.M. (2015). Teaching towards historical expertise: Developing a pedagogy for fostering causal reasoning in history. *Journal of Curriculum Studies*, 47(1), 49-76. <https://doi.org/10.1080/00220272.2014.968212>
- Stoel, G. L., Van Drie, J. P., & Van Boxtel, C. A. M. (2017). The effects of explicit teaching of strategies, second-order concepts, and epistemological underpinnings on students' ability to reason causally in history. *Journal of Educational Psychology*, 109(3), 321-337. <https://doi.org/10.1037/edu0000143>
- Strandberg, A. (2023). Grammar coming alive: Swedish L1 teachers' reflections on using authentic texts when teaching grammar. *Scandinavian Journal of Educational Research*, 69(1), 108-121. <https://doi.org/10.1080/00313831.2023.2263530>
- Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Sage.
- Stroop, J. (2012). Is 'hun hebben' zeggen echt zo dom? In M. Boogaard & M. Jansen (Red.) *Alles wat je altijd al had willen weten over taal. De taalcanon* (pp. 189-191). Meulenhoff.
- Taaladvies.net. (n.d.). *Language Advice Service*. Retrieved July 16, 2024 from <https://taaladvies.net/>.
- Tabachnick, B., & Fidell, L. (2013). *Using multivariate statistics*. Pearson Education.

- Tordoir, A., & Damhuis, R. (1982). *Grammatica en vreemdetalenonderwijs in de brugklas. Een onderzoek naar de aansluiting van het moedertaal-grammaticaonderwijs op het vreemde talenonderwijs*. SCO.
- Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times*. John Wiley & Sons.
- Trousdale, G (2010), Knowledge about language in the English classroom: A Scottish perspective. In T. Locke (Ed.), *Beyond the grammar wars. A resource for teachers and students on developing language knowledge in the English/literacy classroom* (pp. 73-87). Routledge.
- Uyttendaele, J. (2014). Taalbeschouwing volgens de nieuwe eindtermen. In S. Vanhooren & A. Mottart (Eds.), *Achtentwintigste conferentie van Het Schoolvak Nederlands* (pp. 287-290). Academia Press.
- Van Bergen, G., Stoop, W., Vogels, J., & De Hoop, H. (2011). *Leve hun! Waarom hun nog steeds hun zeggen*. *Nederlandse Taalkunde*, 16(1), p. 2-29.
- Van Boxtel, C. (2004). Studying peer interaction from three perspectives: The example of collaborative concept learning. In J. L. v d Linden & P. Renshaw (Eds.), *Dialogic learning: shifting perspectives to learning, instruction and teaching* (pp. 125-144). Kluwer Academic Publishers.
- Van Calcar, W. (1983). *Een nieuwe grammatica voor taalbeschouwing en taalbeheersing*. Leuven: Acco.
- Van de Schoot, R., Broere, J. J., Perryck, K. H., Zondervan-Zwijnenburg, M., & Van Loey, N. E. (2015). Analyzing small data sets using bayesian estimation: The case of posttraumatic stress symptoms following mechanical ventilation in burn survivors. *European Journal of Psychotraumatology*, 6, Article 25216. <https://doi.org/10.3402/ejpt.v6.25216>
- Van den Broek, E.W.R. (2020). *Language awareness in foreign language education. Exploring teachers' beliefs, practices and change processes*. (Doctoral Dissertation). Radboud University Nijmegen, Nijmegen. <https://doi.org/10.1080/09571736.2019.1688857>
- Van der Aalsvoort, M. (2016). *Vensters op vakontwikkeling. De betwiste invoering van taalkunde in het examenprogramma Nederlands havo/vwo (1988-2008)*. (Doctoral dissertation). Radboud Universiteit, Nijmegen.
- Van der Meulen, M.S. (2023). *Unraveling prescriptivism. Relation between language advice publications and language use in the Netherlands*. (Doctoral dissertation). Radboud Universiteit, Nijmegen.
- Van Drie, J., & Van Boxtel, C. (2008). Historical reasoning: Towards a framework for analysing students' reasoning about the past. *Educational Psychology Review*, 20(2), 87-110.
- Van Drie, J., & Van Boxtel, C. (2011). "In essence I'm only reflecting": Teacher strategies for fostering historical reasoning in whole-class discussions. *International Journal of Historical Learning, Teaching and Research*, 10(1), 55-66.
- Van Eynde, F. (2015). *Predicative constructions. From the Fregean to a Montagovian Treatment*. California: CSLI publications.
- Van Gelderen, A. (2010). Does explicit teaching of grammar help students to become better writers? Insights from empirical research. In T. Locke (Ed.), *Beyond the grammar wars. A resource for teachers and students on developing language knowledge in the English/literacy classroom* (pp. 109-128). Routledge.
- Van Hout, R. (1989). *De structuur van taalvariatie. Een sociolinguïstisch onderzoek naar het stadsdialect van Nijmegen*. [Doctoral Dissertation] Radboud Universiteit.
- Van Laere, A. (2016). Taal beschouwen met leerlinge van de derde graad aso. In S. Vanhooren & A. Mottart (Eds.), *Dertigste conferentie onderwijs Nederlands* (pp. 258-260). Skribis.
- Van Rijt, J. (2013). Effecten van semantisch georiënteerd grammaticaonderwijs op het redekundig ontleden van brugklasleerlingen. *Levende Talen Tijdschrift*, 14(1), 28-36. <https://lt-tijdschriften.nl/ojs/index.php/lt/article/view/241>
- Van Rijt, J. (2016). Meer grip op taalkundige structuren. De meerwaarde van Valentie als taalkundig concept binnen het grammaticaonderwijs. *Levende Talen Magazine*, 103(7), 7-10. <https://lt-tijdschriften.nl/ojs/index.php/ltn/article/view/1609>

- Van Rijt, J. (2017). Als je een hek groen verft, is het uiteindelijk ook groen: De bepaling van gesteldheid op basis van het concept 'predicatie'. In S. Vanhooren & A. Mottart (Eds.), *Eenendertigste Conferentie Onderwijs Nederlands* (pp. 297-301). Academia Press.
- Van Rijt, J.H.M. (2020). *Understanding grammar. The impact of linguistic metaconcepts on L1 grammar education*. (Doctoral Dissertation) Radboud University Nijmegen, Nijmegen. <https://doi.org/10.1080/02671522.2020.1784258>
- Van Rijt, J. (2024). Learning how to think like a linguist: Linguistic reasoning as a focal point in L1 grammar education. *Language and Linguistics Compass*, 18(3), 1-17. Article e12513. <https://doi.org/10.1111/lnc3.12513>
- Van Rijt, J., Banga, A., & Goudbeek, M. (2023). Getting a load of linguistic reasoning: How L1 student teachers process rules of thumb and linguistic manipulations in discussions about grammar. *Applied Linguistics*, 45(1), 163-188. <https://doi.org/10.1093/applin/amad011>
- Van Rijt, J., & Coppen, P.-A. (2017). Bridging the gap between linguistic theory and L1 grammar education – experts' views on essential linguistic concepts. *Language Awareness*, 26(4), 360-380. <https://doi.org/10.1080/09658416.2017.1410552>
- Van Rijt, J., De Swart, P., & Coppen, P.-A. (2018). Linguistic concepts in L1 grammar education: A systematic literature review. *Research Papers in Education*, 34(5), 621-648. <https://doi.org/10.1080/02671522.2018.1493742>
- Van Rijt, J., Hulshof, H., & Coppen, P.-A. (2021). 'X is the odd one out, because the other two are more about the farmland' – Dutch L1 student teachers' struggles to reason about grammar in odd one out tasks. *Studies in Educational Evaluation*, 70, 1-13. <https://doi.org/10.1016/j.stueduc.2021.101007>
- Van Rijt, J., & Wijnands, A. (2017). Taalnorm, taalwerkelijkheid en taalgevoel: de casus 'hun hebben'. *Levende Talen Magazine*, 7, 4-8.
- Van Rijt, J., Wijnands, A., & Coppen, P.-A. (2019). Dutch teachers' beliefs on linguistic concepts and reflective judgement in grammar teaching. *L1-Educational Studies in Language and Literature*, 19, 1-28. <https://doi.org/10.17239/L1ESLL-2019.19.02.03>
- Van Rijt, J.H.M., & Coppen, P.-A.J.M. (2021). The conceptual importance of grammar Knowledge-related rationales for grammar teaching. *Pedagogical Linguistics*, 2(2), 175-199. <https://doi.org/10.1075/pl.21008>
- Van Rijt, J.H.M., De Swart, P., Wijnands, A., & Coppen, P.-A. (2019). When students tackle grammatical problems: Exploring linguistic reasoning with linguistic metaconcepts in L1 grammar education. *Linguistics and Education*, 52, 78-88. <https://doi.org/10.1016/j.linged.2019.06.004>
- Van Velzen, J. (2016). Complex problem solving in L1 education: Senior high school students' knowledge of the language problem-solving process. *The Journal of Educational Research*, 110(6), 634-641. <https://doi.org/10.1080/00220671.2016.1171198>
- Van Vooen, V., Casteleyn, J., & A. Mottart (2012). The impact of teachers' beliefs on grammar instruction and students' grammar competences. *Procedia – Social and Behavioral Sciences*, 69, 641-648.
- Vanhooren, S., Pereira, C., & Bolhuis, M. (2017). Iedereen taalcompetent! Visie op de rol, de positie en de inhoud van het onderwijs Nederlands in de 21ste eeuw. Nederlandse Taalunie.
- VanSledright, B., & Maggioni, L. (2016). Epistemic cognition in history. In J.A. Green, W.A. Sandoval, & I. Bråten (Eds.), *Handbook of epistemic cognition* (pp. 128-146). Routledge.
- Vansledright, B., & Reddy, K. (2014). Changing epistemic beliefs? An exploratory study of cognition among prospective history teachers. *Revista Tempo e Argumento*, 6(11), 28-68. <https://doi.org/10.5965/21751803061120>

- Vehtari, A., Gelman, A., Simpson, D., Carpenter, B., & Bürkner, P.-C. (2021). Ranknormalization, folding, and localization: An improved $\hat{R}$ for assessing convergence of MCMC (with discussion). *Bayesian Analysis*, 16(2), 667-718. <https://doi.org/10.1214/20-BA1221.652>
- Verhagen, A. (2010). Taalkundig denken. Denken als een taalkundige. In H. Hulshof & T. Hendrix (Eds.), *Taalkunde en het schoolvak Nederlands* (pp. 20-24). VLLT.
- Vlaamse Overheid. (z.d.). Onderwijs in Vlaanderen. <https://onderwijs.vlaanderen.be/nl>
- Voet, M., & De Wever, B. (2016). History teachers' conceptions of inquiry-based learning, beliefs about the nature of history, and their relation to the classroom context. *Teaching and Teacher Education*, 55, 57-67. <https://doi.org/10.1016/j.tate.2015.12.008>
- VVKSO (2014). Leerplan secundair onderwijs, Nederlands, derde graad aso-kso-tso. VVKSO (D/2012/7841/0001)
- Vygotsky, L. (1962). *Thought and language*. The MIT Press. <https://doi.org/10.1037/11193-000>
- Wagenmakers, E.-J., Love, J., Marsman, M., Jamil, T., Ly, A., Verhagen, J., Selker, R., Gronau, Q. F., Dropmann, D., Boutin, B., Meerhoff, F., Knight, P., Raj, A., Van Kesteren, E.-J., Van Doorn, J., Smíra, M., Epskamp, S., Etz, A., Matzke, D., ... Morey, R. D. (2018). Bayesian inference for psychology. Part II: Example applications with JASP. *Psychonomic Bulletin & Review*, 25(1), 58-76. <https://doi.org/10.3758/s13423-017-1323-7>
- Wansink, B. G.-J., Akkerman, S., & Wubbels, T. (2016). The certainty paradox of student history teachers: Balancing between historical facts and interpretation. *Teaching and Teacher Education*, 56, 94-105. <https://doi.org/10.1016/j.tate.2016.02.005>
- Watson, A. (2015a). Conceptualisations of grammar teaching: L1 English teachers' beliefs about teaching grammar for writing. *Language Awareness*, 24(1), 1-14. <https://doi.org/10.1080/09658416.2013.828736>
- Watson, A. (2015b) The Problem of grammar teaching: a case study of the relationship between a teacher's beliefs and pedagogical practice. *Language and Education*, 29(4), 332-346. <https://doi.org/10.1080/09500782.2015.1016955>
- Watson, A., & Newman, R. (2017): Talking grammatically: L1 adolescent metalinguistic reflection on writing. *Language Awareness*, 26(4), 381-398. <https://doi.org/10.1080/09658416.2017.1410554>
- Weaver, C. (2010). Scaffolding grammar instruction for writers and writing. In T. Locke (Ed.). *Beyond the grammar wars. A resource for teachers and students on developing language knowledge in the English/literacy classroom* (pp. 185-205). Routledge.
- Wellington, J. (2015). Educational research contemporary issues and practical approaches. Second edition. Continuum. <https://doi.org/10.5040/9781474236966>
- Werkgroep Taal / Expertgroep Doorlopende Leerlijnen Taal en Rekenen (2008). *Over de drempels met taal: De niveaus voor de taalvaardigheid*. Enschede: SLO.
- Werkgroep Taal (2009). *Een nadere beschouwing: Over de drempels met taal en rekenen*. SLO.
- Wesner, J. S., & Pomeranz, J. P. F. (2021). Choosing priors in Bayesian ecological models by simulating from the prior predictive distribution, 2021/09/01 *Ecosphere*, 12(9), Article e03739. <https://doi.org/10.1002/ecs2.3739>
- Wijnands, A. (2015). Dat zoeken we op! Het gebruik van de ANS bij grammatica. In S. Vanhoorn & A. Mottart (Eds.), *Negenentwintigste conferentie onderwijs Nederlands* (pp. 348-353). Academia Press.
- Wijnands, A. (2016). Denken met de Algemene Nederlandse Spraakkunst. Het gebruik van taalkundige bronnen in de taalkundelessen. In S. Vanhooren & A. Mottart (Eds.), *Dertigste conferentie Het Schoolvak Nederlands* (pp. 244-348). Academia Press.
- Wijnands, A. (2022). How conflicting linguistic sources in the classroom can stimulate reflective thinking: A preliminary study. Poster presented at the SIG EARLI 20-26 Conference, Utrecht. <https://doi.org/10.13140/RG.2.2.31417.17769>

- Wijnands, A., & Echten, K. (2019). Over fijn gesneden groentes en luid zingende bussen. Gedifferentieerd leren nadenken over taalkwesties in vwo-5. In S. Vanhooren & A. Mottart (Eds.), *Drieëndertigste conferentie Het Schoolvak Nederlands* (pp. 267-271). Academia Press.
- Wijnands, A., Van Rijt, J., & Coppen, P.-A. (2021). Learning to think about language step by step. A pedagogical template for the development of cognitive and reflective thinking skills in L1 grammar education. *Language Awareness*, 30(4), 317-335. <https://doi.org/10.1080/09658416.2021.1871911>
- Wijnands, A., Van Rijt, J., & Coppen, P.-A. (2022). Measuring epistemic beliefs about grammar. *L1-Educational Studies in Language and Literature*, 22(1), 1-29. <https://doi.org/10.21248/l1esll.2022.22.1.362>
- Wijnands, A., Van Rijt, J., Stoel, G., & Coppen, P.-A. (2022). Balancing between uncertainty and control: Teaching reflective thinking about language in the classroom. *Linguistics & Education*, 1-19. Article 101087. <https://doi.org/10.1016/j.linged.2022.101087>
- Wineburg, S. S. (1991). On the reading of historical texts: notes on the breach between school and academy. *American Educational Research Journal*, 28(3), 495-519. <https://doi.org/10.3102/00028312028003495>
- Winter, B., & Bürkner, P.-C. (2021). Poisson regression for linguists: A tutorial introduction to modelling count data with brms, 2021/11/01 *Language and Linguistics Compass*, 15(11), Article e12439. <https://doi.org/10.1111/lnc3.12439>
- Witte, T. C. H. (2008). *Het oog van de meester: een onderzoek naar de literaire ontwikkeling van HAVO- en VWO-leerlingen in de tweede fase van het voortgezet onderwijs*. (Doctoral dissertation). Rijksuniversiteit Groningen.
- Wood, D., Bruner, J., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry*, 17, 89-100.
- Yuen Lie Lim, L-A (2011). A comparison of students' reflective thinking across different years in a problem-based learning environment. *Instructional Science*, 39(2), 171-188. <https://doi.org/10.1007/s11251-009-9123-8>
- Zohar, A., & Ben-David, A. (2008). Explicit teaching of meta-strategic knowledge in authentic classroom situations. *Metacognition and Learning*, 3(1), 59-82. <https://doi.org/10.1007/s11409-007-9019-4>
- Zohar, A. (2012). Explicit teaching of metastrategic knowledge: Definitions, students' learning, and teachers' professional development. In A. Zohar & Y. J. Dori (Eds.), *Metacognition in science education* (pp. 197-224). Springer. https://doi.org/10.1007/978-94-007-2132-6_9



Contributions of authors

Chapters in this dissertation and contributions of co-authors

Chapter 1 and 7 were written by Wijnands. Coppen and Stoel gave feedback on draft versions.

Chapter 2 is based on:

Van Rijt, J., Wijnands, A., & Coppen, P.-A. (2019). Dutch Teachers' Beliefs on Linguistic Concepts and Reflective Judgement in Grammar Teaching. *L1-Educational Studies in Language and Literature*, 19, 28. <https://doi.org/10.17239/L1ESLL-2019.19.02.03>

Contributions:

As stated by Van Rijt (2020, p. 54), this article was written equally by Van Rijt and Wijnands, in a joint writing process. Both reviewed the literature and developed the questionnaire, with Wijnands working on the questions on reflective thinking and Van Rijt on the questions on grammatical concepts. Wijnands conducted the textbook analysis on reflective thinking, while Van Rijt conducted the textbook analysis on grammatical concepts. Both analyses were discussed in detail by both authors and the data were analysed by both authors. The statistics were conducted by Van Rijt in collaboration with Brenda van den Broek (see acknowledgments), but were discussed in detail with Astrid Wijnands. Coppen provided feedback on several versions of the manuscript.

Chapter 3 is based on:

Wijnands, A., Van Rijt, J., & Coppen, P.-A. (2022). Measuring epistemic beliefs about grammar. *L1-Educational Studies in Language and Literature*, 22(1), 1–29. <https://doi.org/10.21248/l1esll.2022.22.1.362>

Contributions:

Wijnands reviewed the literature. Coppen and Wijnands together converted Stoel's et al. (2017) questionnaire to the grammar domain. Wijnands collected the data. Van der Slik (see acknowledgements) conducted the exploratory factor analysis of the students' scores on the questionnaire. Wijnands conducted the remaining statistical analyses. Wijnands wrote the first draft of the article, Coppen supervised Wijnands in writing the final article. Van Rijt provided feedback on several versions of the manuscript.

Chapter 4 is based on:

Wijnands, A., Van Rijt, J., & Coppen, P.-A. (2021). Learning to think about language step by step. A pedagogical template for the development of cognitive and reflective thinking skills in L1 grammar education. *Language Awareness*, 30(4), 317-335. <https://doi.org/10.1080/09658416.2021.1871911>

Contributions:

Wijnands reviewed the literature, created the pedagogical template, and wrote the article. The pedagogical template had been extensively discussed with teachers in a professional learning community. Coppen and Van Rijt gave feedback on several versions of the manuscript.

Chapter 5 is based on:

Wijnands, A., Van Rijt, J., Stoel, G., & Coppen, P.-A. (2022). Balancing between uncertainty and control: Teaching reflective thinking about language in the classroom. *Linguistics & Education*, 1-19. <https://doi.org/10.1016/j.linged.2022.101087>

Contributions:

Wijnands reviewed the literature. Together with a professional learning community, she designed the lesson materials and collected the data. Finally, she analysed the data and wrote the manuscript. Coppen and Stoel supervised the analysis and gave feedback on several versions of the manuscript. Van Rijt gave feedback on later versions of the manuscript.

Chapter 6 is based on:

Wijnands, A., Stoel, G., Gijsen, M., & Coppen, P.-A. (2024). Bringing conflicting sources into the classroom. Eliciting and scaffolding reflective thinking in Dutch L1 linguistic education. Manuscript to be submitted for publication.

Contributions:

Wijnands reviewed the literature. The data of the first study of this chapter were collected in the study described in chapter 5. Wijnands analysed the data under supervision of Stoel and Coppen. In the second study of this chapter, Wijnands created the intervention materials together with Coppen. Stoel gave feedback on these materials. Wijnands collected the data and conducted one of the lessons during this data collection. Wijnands analysed the data, with Stoel functioning as critical friend. Gijsen conducted the statistical analyses of this second study. In several versions, he discussed analyses with Wijnands, Stoel, and Coppen. Finally, Wijnands wrote the manuscript under supervision of Stoel and Coppen, who provided feedback on various versions.



Appendices

Appendix A

Overview of the items (with means and standard deviations) used in the first section of the questionnaire regarding Reflective Judgement (King & Kitchener, 1994) based on Maggioni et al. (2004). Translations from Dutch by the authors.

Pre-reflective thinking			
	M	SD	N
To be good in grammar, students mainly have to remember rules-of-thumb.	3.02	1.23	110
In grammar, understanding the idea behind the rule-of-thumb is unnecessary.*	2.46	1.16	110
To be good in grammar is to know when to apply which rules.	3.82	1.15	110
In grammar teaching, emphasis should be given more to 'how language works' than to 'how language should be used'.**	2.70	1.14	110
Teachers shouldn't ask their students what they think of a linguistic matter, they should only verify they know the appropriate rule.	1.95	0.97	110
Good analytical capacity is sufficient for learning grammar well.	3.16	1.03	110

Note. * This item was deleted from the questionnaire because Cronbach's alpha revealed the item behaved differently from other items (cf. footnote in method section).

** This item has been mirrored.

Quasi-reflective thinking			
	M	SD	N
Teachers have to confront students with different possible analyses of sentences to show that grammatical analysis is not clear-cut.	3.51	1.24	110
Strong students know that many sentences cannot be analysed unambiguously.	3.58	1.03	110
Students have to be aware that linguistic matters cannot be analysed in a clear-cut way.	3.94	0.99	110
Grammar should not be taught as a closed system: some linguistic matters are clear-cut, whereas other matters can be differently interpreted by different individuals.	3.76	1.06	110
When consulting a linguistic source, it is important to know whether reasoning occurs from the prescriptive norm, the language intuitions of the author or from the language as used in real life.	3.65	1.09	110
Because the prescriptive norm changes continuously, it doesn't matter that students don't strictly apply this norm.	2.79	1.09	110

Reflective thinking			
	<i>M</i>	<i>SD</i>	<i>N</i>
Consulting linguistic sources is an important strategy for teaching grammar.	3.06	1.09	110
Knowing how to analyse a sentence is as important for students as it is for linguists.	2.95	1.30	110
For their grammatical development, it is essential that students learn how to interpret linguistic sources.	3.08	1.02	110
Students must learn how to cope with different analyses of grammatical issues.	3.54	1.07	110
Students have to learn how to underpin a grammatical analysis with arguments.	3.73	1.20	110
Textbooks must stimulate students to substantiate the analysis of sentences with arguments.	3.84	1.07	110
Students consulting linguistic sources learn that many utterances cannot be unambiguously analysed grammatically.	3.65	0.85	110

Appendix B

Conversion of history phrases (Stoel et al., 2017) into linguistic phrases

History phrase used by Stoel et al. (2017)	Converted linguistic phrase
History / A history account	The analysis of words and sentences
History inquiry	Analysing words and sentences
Different stories about the past	Analysing the form and meaning of a word or sentence in different ways
Past	Form and meaning
To know what happened in the past	To know the correct form and meaning of a word or sentence
Historical events	Language intuitions
The same claim about a historical event	The same judgment about the analysis of a word or sentence
To give a same explanation for an event	To analyse words and sentences in a similar way
Interpretation	Language intuition
Causes	Language rules and language intuitions
Complete evidence	To follow all steps
Eyewitnesses	Peoples judgment of the grammaticality of a word or sentence.
Multiple perspectives on the past	Different perspectives on form and meaning into account (What do you think? What do other people think? What are the rules?)

Appendix C

Experts' scores on the questionnaire

		Experts						
		1	2	3	4	5	6	7
Pre-reflective								
1	The goal of analysing words and sentences is to find the correct solution.	2	2	1	2	5	1	4
3	When two persons have the same judgment about the analysis of a word or sentence, you know it is true.	3	2	1	2	2	2	2
8	Linguistic experts will analyse words and sentences in the same way, when they consult the same linguistic sources.	3	2	1	2	2	5	4
9	The basis of one's language intuitions are the prescriptive language rules.	2	2	1	1	1	4	2
16	When some people consider a word or sentence as ungrammatical, it is impossible to analyse this word or sentence in a proper way.	2	2	2	1	1	2	1
17	It is not possible to analyse words and sentences adequately when these words and sentences can be viewed differently.	2	2	2	1	2	2	2
18	Linguistic experts will probably have the same answers on questions about form and meaning.	4	2	2	1	5	5	2
20	A word or sentence can only be analysed correctly when you have gone through all the steps.	4	2	4	2	3	4	2
21	When a language rule is written in your textbook, you can be nearly certain that it is true.	4	2	4	1	2	2	4
23	When the form and meaning of a word or sentence can be analysed in different ways, only one can be correct.	2	2	1	1	1	1	2
Quasi-reflective								
7	Analyses of words or sentences are mainly opinions.	2	2	1	2	1	2	2
10	Since your language intuitions cannot be observed in a reliable way, you will never know whether those intuitions are correct.	2	4	4	4	1	5	3
12	Analyses of words or sentences are largely opinions of linguistic experts.	2	2	3	1	2	2	1
19	You can never know for certain the correct form and meaning of a word or sentence.	3	5	4	3	2	2	5
25	In a thorough analysis, all the causes of your own language intuitions will become clear.	4	4	3	4	3	3	3

		Experts						
		1	2	3	4	5	6	7
Reflective								
2	There are various methods to prove the correctness of an analysis of words and sentences.	5	5	4	5	5	5	6
4	When analysing words and sentences you must learn to deal with conflicting information.	5	5	6	5	5	5	6
5	The analysis of words and sentences is a good way to develop your inquiry skills.	5	6	4	6	5	5	5
6	When analysing words and sentences it is important that you learn to support your reasoning with evidence.	5	6	4	6	5	5	6
11	When consulting sources it is important to check the origin of the source.	5	6	6	6	5	6	5
13	New explanations for language intuitions will always be invented.	4	3	4	5	4	5	3
14	In the analysis of words and sentences your own language intuitions are important.	5	4	5	6	5	5	2
15	A good analysis of words and sentences must take different perspectives on form and meaning into account (What do you think? What do other people think? What are the rules?).	5	6	4	6	3	5	5
22	The analysis of words and sentences is a critical search for form and meaning.	5	6	6	6	5	5	4
24	Even when consulting the same sources, linguistic experts often arrive at different analyses.	4	5	6	5	3	5	4
26	In many cases, linguistic experts will continue to discuss language rules and language intuitions.	4	5	5	5	2	5	5

Appendix D

AN combinations

In the current study, the way in which adjectives and nouns are combined was selected as the linguistic issue around which nine assignments in the pedagogical template were created. This type of construction can occur as an AN-compound or as an AN-phrase, often leading to a difference in meaning, e.g., “kleinkind” (*grandchild*) vs. “klein kind” (*small child*) or “plattekaas” (*quark*) vs. “platte kaas” (*flat cheese*). Table D1 illustrates the fact that clear contrasts can be observed between AN-compounds and AN-phrases concerning orthography, phonological and morphological properties, the use of intensifiers, and modification.

Table D1. Differences between AN-compounds and AN-phrases.

	AN-Compound	AN-Phrase
Orthography	een kleinkind “a small-child” <i>a grandchild</i>	een klein kind “a small child” <i>a small child</i>
Phonology (word stress falls on underlined syllable)	een kleinkind “a <u>small</u> -child” <i>a grandchild</i>	een klein kind “a <u>small child</u> ” <i>a small child</i>
Morphology Inflection -e	het kleinkind “the small-child” <i>the grandchild</i>	het kleine kind “the small+INFL child” <i>the small child</i>
comparative	*Een kleinerkind “a smaller-child” <i>a great-grandchild</i> ^a	Een kleiner kind “a smaller child” <i>a smaller child</i>
superlative	*Het kleinstekind “the smallest-child” <i>The great-great-grandchild</i> ^a	Het kleinste kind “the smallest child” <i>the smallest child</i>
Intensifier use	*Erg kleinkind “very small-child” <i>very grandchild</i> ^b	Erg klein kind “very small child” <i>very small child</i>
Modification	Klein kleinkind “small small-child” <i>small grandchild</i>	*klein klein kind “small small child” <i>*small small child</i>

Note. ^aThese translations are fictitious since the words do not exist in Dutch. This would presumably be the translation if the words did exist.

^bAlthough this translation exists in English in the phrase “the very grandchild,” the Dutch word does not exist and would not produce the equivalent reading.

However, despite these clear differences, there are various reasons for which AN combinations can be characterised as ill-structured and are therefore suitable as subject matter for reflective thinking activities. The spelling of AN combinations is not as well-structured as suggested in Table A1 (Booij, 2019). First, many AN combinations can be written either as a compound or as a phrase without any difference in meaning, e.g., “luxediner” or “luxe diner” (*luxury diner*); “onlinewoordenboek” or “online woordenboek” (*online dictionary*); “doorsneefamilie” or “doorsnee familie” (*average family*). Second, some AN-compounds also receive word stress on the noun, e.g., “jongeman” (*young man*); “plattekaas” (*quark*). Third, although in most cases an adjective embedded in an AN-compound is not inflected, some AN-phrases with inflected adjectives have become regular compounds, e.g., “rodekool” (*red cabbage*); “hogeschool” (*applied university*). In these cases, the difference between an AN-compound and an AN-phrase can only be detected when the diminutive form is applied: the adjective in an AN-phrase will lose its inflectional *-e* because of the fact that diminutives are neuter nouns in Dutch, and in a AN-phrase with a neuter noun as a head, the prenominal adjective will not be inflected; whereas the adjective remains inflected in AN-compounds. Thus, the following contrasts can be observed: “rodekooltje” vs. “rood kooltje” (*little red cabbage*); “hogeschooltje” (*little applied university*) vs. “hoog schooltje” (*little high school*).

In addition to these reasons, the very strong influence of the English language leads many Dutch language users to write compounds as two words (Booij, 2019). Language advice books and websites, and reference grammars also describe the fuzzy boundaries between AN-compound and AN-phrase spelling. The spelling of AN-compounds is not merely a matter of writers’ own language intuitions or their knowledge of a strict prescriptive rule; it can also be a matter of expressing a particular meaning (e.g., writing “luxe diner” as two words to emphasise the luxury offerings of the diner) or increasing the readability of a word (e.g., writing “onlinewoordenboek” as two words: “online woordenboek”).



Appendix E

Overview of the assignments and reflection questions created for the Final Design

Initial design	Stages of cognitive thinking		
Stages of reflective thinking	Information-gathering		
Pre-reflective	P-IG Students should make a choice between two menus: - Menu 1 written in AN-phrase spelling - Menu 2 written in AN-compound spelling Menu 1 is more correctly written than menu 2 Three AN-compounds can also be written in an AN-phrase spelling, one of them has a different meaning.	<i>In step P-BU, you continue with the question, 'OK, so how do you know when to write words together and when not to?'</i>	
	<i>In step Q-IG, you continue with the question, 'OK, but what about words that you can write both together and separately?'</i>		
Quasi-reflective	Q-IG Students get a text without spaces. They have to split words by themselves. They first do this individually and then they compare the answers with each other. A number of words can be spelled, sometimes with a different meaning, as either AN-compound or AN-phrase. A student probes his own language intuitions and compares the results with those of other students.	<i>In step Q-BU, you continue with the question, "OK, so do other people also write these words differently in different contexts? For example, how do you find these words in newspapers and on news sites?"</i>	
	<i>In step R-IG, you continue by asking, 'OK, but what about words that you can write separately and together no matter what context?'</i>		
Reflective	R-IG Students are given sorting task with cards with words written in two ways without and with meaning difference. Students research the spelling of one word in looking in databases and advice books/grammars.	<i>In step R-BU, you continue by asking, 'Ok, so what do linguistic sources say about these types of words?'</i>	

Building information		Productive thinking
P-BU Students perform a sorting task with cards, making three categories: I write these words together; I write these words separately; I can write these words both separately and together. Students should come up with three more words. They make use of the toolbox for checking their categorization.	<i>In step P-PT, you continue with the question, 'OK, so what does language advice say about whether or not to write these types of words together?'</i>	P-PT Students consult language advice services. Students compare what they found in language advice services with their own classification. Students check their classification with wordlist.org
<i>In step Q-BI, you continue with the question, 'OK, but how do other people write these types of words? For example, how do you find these words in newspapers and on news sites?'</i>		<i>In step Q-PT, you continue with the question, 'OK, but if you read the advice carefully, it's like it doesn't matter how you write a word? Does it?'</i>
Q-BU Students are given the example of writings of <i>open lucht</i> (open air) and <i>openlucht</i> (open air) to investigate how these words are used in different contexts by looking in databases and advice books/ grammars.	<i>In step Q-PT, you continue with the question, 'OK, so which rule now fits best in which context when it comes to writing these types of words as one word or as two words?'</i>	Q-PT Using examples of headlines students formulates in which context is the best rule. A learner writes an opinion using language advice services.
<i>In step R-BU, you continue by asking, 'OK but, what do linguistic sources say about these types of words?'</i>		<i>In step R-PT, you continue with the question, 'OK but, how can I support my choice of spelling also using a linguistic source?'</i>
R-BU Students investigate how this construction is made according to linguistic sources such as text from a reference grammar and language advice books.	<i>In step R-PT, you continue with the question, 'OK, so how can I support my choice of spelling also using a linguistic source?'</i>	R-PT Students make a well-considered choice for a certain spelling in a certain context. Students write an advice about this to their peers.

Appendix F

List of main thematic and open codes of Evaluation 1 and 2

Red codes and examples indicate where the teachers were explicitly negative about; the green codes and examples indicate where the teachers were explicitly positive about.

	Main thematic codes	Examples of open codes	Examples of participants' words
Lesson	Problem with the delivery of this lesson	time pressure	<i>I did that more or less roughly; keep on running.</i>
		lack of content control	<i>You don't have that under control.</i>
		lack of pedagogical overview of the classroom	<i>When I am here, students over there start to discuss about something else.</i>
	Expectations students	expectation	<i>Have solved as many assignments as possible.</i>
		absence of lesson purpose	<i>It has no lesson goal at the beginning; That they don't know what we want to go to.</i>
		difference in perception of the assignment causes different elaborations	<i>The assignment doesn't call for anything pre-reflective; They still think we're in school so it's right or wrong; that we're exploring how much they know about compositions.</i>

Table continued

	Main thematic codes	Examples of open codes	Examples of participants' words
Students' performance	Students' reasoning	terminology	Adjective; noun; compound.
		explaining language rules	'Rode kool' [Red cabbage] is an existing word'.
		language change	'I used to be written mostly as two words and now as one word'.
		context	'Depends on what context'.
		comparing words and phrases	'You say 'openluchtconcert' [open air concert], but not concert in open lucht [concert in open air]'.
		prescriptive norm versus language reality	'That according to the official spelling it is written as one word but in practice it is sometimes written as two words'.
		sources	'Not every language advice is consistent'; 'At three sites this is written and so that is correct'.
		language intuitions	it is mainly about language intuitions and an opinion is thus less intuition I think then.
		argumentation	Oh, that's a strange reasoning; they don't finish the reasoning as to why they think that.
		drawing conclusions	They come up with these crazy things like 'ah yes, it will be because of that'.
		system thinking	There's no systems thinking right?
	Searching for a correct answer	need for a correct solution	Want very hard to know the rules; they really don't know.
		pre-reflective	It could be a pre-reflective one. That it's about those other things first and only then about the language factors.
	Toolbox	usability	They leave that tool completely aside.
		effective use	They did deploy the tool; They reason about the writing of green apple.

Table continued

	Main thematic codes	Examples of open codes	Examples of participants' words
Choice for a next assignment	Control on choice next assignment	doubts about students' choice next assignment	<i>need to guide more with those choices.</i>
		fixed route after assignment 1	<i>Don't let doubt in if you don't understand the rules.</i>
		next assignment based on students' knowledge of the basic rules	<i>If you really don't know the basic rule, move to the right. Do not go down.</i>
		test question to determine selection next assignment	<i>Test question such as how can you reason about this issue, are you able to answer that question?</i>
		wrong next step	<i>Those shouldn't have gone to 4 for sure either.</i>
Control on students learning	Importance of the right choice next assignment	Importance of the right choice next assignment	<i>If they end up in the wrong assignment, they won't gain enough from it either.</i>
		absence of motivation for a choice for a next assignment	<i>Do we really see any motivation as to why they are going to 7? No, not at all!</i>
	Learning outcomes	doubts about learning outcomes	<i>Would they have learned anything from it; someone who ends up somewhere in the middle may not have learned anything.</i>
		need for a lesson after	<i>Guys, calm down, this is what we have done; that lesson after has to address 'Is there anyone with questions?'</i>
		need for a prior lesson	<i>A lesson in linguistic reasoning must precede it.</i>
	Control on students' knowledge	classroom moment after finishing the first assignment	<i>everyone is done with step one... just explaining and showing everything in front of the class.</i>

Table continued

	Main thematic codes	Examples of open codes	Examples of participants' words
Revisions	Revisions for next lesson	pedagogical solution	<i>Lay out assignment at the front of the classroom; agree on protocol; fill-in- blanks; show answers.</i>
		pedagogical solution more questions	<i>Asking more questions in the assignment.</i>
		teacher's instruction at the beginning of the lesson	<i>We want to know how you think; Not as quickly as possible through the assignments.</i>
		replacement of assignment numbers	<i>By working with colour or by using P of pre-reflective with a colour.</i>
	Implemented revisions	lay-out	<i>The answer box really works.</i>
		selection after the first assignment write down what is learned	<i>Those are out of place; They shouldn't have gone to 4 for sure either, should they? They had to write down at the end what they had learned from it. Not all of them did.</i>
Reflective thinking	Students' ability of reflective linguistic thinking	pinpointing reflectivity	<i>She is more reflective than X because she argues that in NL it is spelled that way and she also cites the internet.</i>
		reflective linguistic thinking	<i>We want them to reason like linguists and some then hardly have the rules to compare their language intuitions with.</i>
		allowing uncertainty	<i>You may wonder if the line from top to bottom is not more a line of admitting uncertainty, of attitude than it is really a line of reflectivity.</i>
		maturity	<i>Have to do with brain connections they don't all have at that age.</i>
		challenge students' thinking	<i>That those students build an opinion and that a student says something and then says "yes but".</i>
Ict-tool	Backchannelchat	brains-on-the-table	<i>The tool shows how each student builds the reflection individually. That's very interesting to me. Someone says something and then you see how someone else responds to it.</i>

Appendix G

Example of assignment Q-BU from Study 1 – consulting authentic linguistic sources

When your space button broke the other day and you sent a message without spaces, discussions flared up between you and your friends. On WhatsApp, your friends constantly share examples of things not being spelt consistently (see the headlines below). You are a bit fed up with the verbal jousting and you go and find out what is going on here. It's not like anything is possible in Dutch, is it?

Zin in gratis concerten in openlucht? Hier kunt u dit weekend terecht
 Fancy in free concerts in open.air Here can you this weekend go

voor een culturele trip
 for a cultural trip

'Fancy free outdoor concerts? Here's where to go for a cultural trip this weekend'

(vrt nws, 30 juni 2018)

In Kortrijk hebben 245 drummers en drumsters vanmiddag
 In Kortrijk have 245 drummers.male and drummers. female this+afternoon

in openlucht een drummedley met bekende nummers gespeeld
 in open.air a drummedley with well-known songs played

'In Kortrijk this afternoon, 245 drummers performed a drum medley of well-known songs in the open air'

(vrt nws, 1 juli 2018)

Zaalvoetballers spelen in open lucht
 Hall+footballers play in open air

'Indoor footballers play in outdoors'

(Het Nieuwsblad, 17 juni 2018)

Questions

1. Which spelling do you think is right? Explain your answer.
2. Do you spell 'open+air' as one word or as two separate words according to language advice services? What does the online dictionary 'woordenlijst.org' say? What is on the 'Onze Taal' language advice website? Does this service explain the different spellings? If so, how?
3. How do newspapers and news websites spell 'open+air'? Go to www.Delpher.nl to examine the most frequent spelling in newspapers of the last century. Ask your teacher for a help card to search on this website.
4. Search on a news website how 'open+air' is written these days.
5. Have you discovered any differences in contexts when 'open+air' is written as one word or as two words? If so, which ones? [In the original Dutch question a comparison is made with the word 'kleinkind' (small+child), which could refer to a small child when written as two separate words or to a grandchild when written as one word.]

Appendix H

Overview of explanations for differences found in the consulted sources (addition to Table 1)

Type of explanation	Activity type	Typical example from the data	N
Meaning / context	Students conclude that there is a relationship between form and meaning/context	<i>Open air is something as a light that is open and open+air is something as an open sky? Should I write that down?</i>	7
Language change	Students conclude that language has changed	<i>So, I simply write 'in the previous century it was mainly written separately and now only/mainly as one word'</i>	2
Prescriptive rule versus language reality	Students conclude that there is a difference between the prescriptive language rule and language reality.	<i>That according to official spelling it is written together but in practice they do sometimes write it apart as well</i>	2
Language variation	Students conclude that there is a regional difference	<i>Okay, so I write on open+air is a noun and occurs throughout the language area and open air are 2 nouns and is standard language in Belgium</i>	1
Confusion about spelling	Students conclude that there is confusion about spelling	<i>when we compare the language advices, we note that not every advice is the same, there are still confusions even now in our time about how our language should really be written</i>	1
Increased knowledge of spelling	Students conclude that there is nowadays more knowledge about spelling	<i>We noticed that people used to often split the words / Now they already have more knowledge about spelling and write it as one word</i>	1

Appendix I

Strategic organiser

Organiser

Source A
Author: Ministry of Education

How do you characterise the author? Choose from [multiple answers possible]:

A The author is a language expert.
B The author quotes one or more language experts.
C The author is not a language expert.

The author speaks on behalf of (e.g. 'on behalf of elderly people' or 'on behalf of the League Against Swearing')

The source was written for:

Which statements (1) from the blue oval does Source A think is correct? Choose from:

A Statement 1 is correct.
B Statement 2 is correct.
C Statement 1 and 2 are correct.

Which arguments are mentioned in Source A? Write them down briefly here.

How does source A substantiate the statement? Choose from [multiple answers are possible]:

A with the author's language intuitions
B with real-life examples
C with a logical analysis
D there is no substantiation

Source B
Author: Benlthe Sruyken

How do you characterise the author? Choose from [multiple answers possible]:

A The author is a language expert.
B The author quotes one or more language experts.
C The author is not a language expert.

The author speaks on behalf of (e.g. 'on behalf of elderly people' or 'on behalf of the League Against Swearing')

The source was written for:

How reliable do you consider source A?

Totally unreliable 1 Not reliable 2 Slightly reliable 3 Reliable 4 Very reliable 5

Explain your reliability scoring:

Which statements (1) from the blue oval does Source A think is correct? Choose from:

A Statement 1 is correct.
B Statement 2 is correct.
C Statement 1 and 2 are correct.

Which arguments are mentioned in Source A? Write them down briefly here.

How does source A substantiate the statement? Choose from [multiple answers are possible]:

A with the author's language intuitions
B with real-life examples
C with a logical analysis
D there is no substantiation

Source C
Author: Lara Damsté

How do you characterise the author? Choose from [multiple answers possible]:

A The author is a language expert.
B The author quotes one or more language experts.
C The author is not a language expert.

The author speaks on behalf of (e.g. 'on behalf of elderly people' or 'on behalf of the League Against Swearing')

The source was written for:

How reliable do you consider source A?

Totally unreliable 1 Not reliable 2 Slightly reliable 3 Reliable 4 Very reliable 5

Explain your reliability scoring:

Which statements (1) from the blue oval does Source A think is correct? Choose from:

A Statement 1 is correct.
B Statement 2 is correct.
C Statement 1 and 2 are correct.

Which arguments are mentioned in Source A? Write them down briefly here.

How does source A substantiate the statement? Choose from [multiple answers are possible]:

A with the author's language intuitions
B with real-life examples
C with a logical analysis
D there is no substantiation

How to use the verb 'passen' ('to fit') in Dutch?

Statement 1: An adequate use in Dutch is: *Baker zeg, die lui past mij niet meer* (What a shame, this sweater doesn't fit me anymore)

Statement 2: An adequate use in Dutch is: *Baker zeg, ik pas de lui niet meer* (Literally: What a shame, I don't fit the sweater anymore)

Indicate on the box below whether the source agrees or disagrees in follow:

Which does an 'x' if they claim the same thing and a 'y' if they claim the opposite. Note nothing if they are not comparable



Appendix J

Example of a test from Study 2

Question 1

- a During a sports training session, you drop the name of your Dutch teacher, to which a friend responds: ‘Is your teacher Theo Lagemaat? He used to teach my parents too. They still mention him often. *Zij herinneren zich hem* als gisteren [they remember REFL.PRON him like yesterday; ‘they remember him like yesterday’].

Indicate to what extent you consider ‘*Zij herinneren zich hem*’ [they remember REFL.PRON him; ‘they remember him’] in the above sentence to be good Dutch.

Very bad Dutch	Bad Dutch	Doubtful Dutch	Good Dutch	Excellent Dutch
1	2	3	4	5

- b During a sports training session, you drop the name of your Dutch teacher, to which a friend responds: ‘Is your teacher Theo Lagemaat? He used to teach my parents too. They still mention him often. *Zij herinneren hem* als gisteren [‘they remember him like yesterday’].

Indicate to what extent you consider ‘*Zij herinneren hem*’ [‘they remember him’] in the above sentence to be good Dutch.

Very bad Dutch	Bad Dutch	Doubtful Dutch	Good Dutch	Excellent Dutch
1	2	3	4	5

- c Complete the following sentence by circling the answer you feel most comfortable with.

I base my choices in question 1a and 1b on

- A** the language I hear around me
- B** the prescribed language rules
- C** my own language intuitions

Source A was written by Piet in 't Veld. In 't Veld works as an editor at the *Juinen's Daily*. This newspaper has critical readers who like to respond to language constructions in the paper that catch their eye. In 't Veld responds every week to what readers have noticed. Source A is one such response. Read source A.

Source A

In 't Veld responds to your questions**Question from a reader:**

Lately, in many obituaries, I read 'wij herinneren haar als...' ['we remember her as...'] Is that correct? Shouldn't that be 'wij herinneren ons haar als...' [we remember REFL. PRON her as...; 'we remember her as']?

Answer:

The editors do not interfere with the language in obituaries, but you are right. The correct form is: 'wij herinneren ons haar als...' [we remember REFL. PRON her as...; 'we remember her as']

Indeed, the verb *herinneren* [to remember] is a reflexive verb in the meanings 'to be able to recall something' and 'to remember something/someone'.

- (1) *Herinnert u zich nog wanneer u het nieuws hoorde?*

Remember you REFL. PRON still when you the news heard?

'Are you able to recall when you heard the news?'

- (2) *Ze herinnert het zich nog als de dag van gisteren.*

She remembers it REFL. PRON as the day of yesterday

'She remembers it like yesterday.'

Nowadays, the reflexive pronoun is sometimes omitted for *herinneren* ('to remember') in the meanings 'zich voor de geest kunnen halen' ('to bring something to mind'), 'iets nog weten' ('remember something still') en 'gedenken' ('to commemorate'). That usage is not standard language, not correct Dutch. The reflexive pronoun should also be used in those meanings. So sentence (3) and (4) are not correct.

- (3) *Herinnert u nog wanneer u het nieuws hoorde? (geen standaardtaal)*

Remember you still when you the news heard? (no standard+language)

'Are you able to recall when you heard the news? (no standard language)'

- (4) *Ze herinnert het nog als de dag van gisteren. (geen standaardtaal)*

She remembers it still as the day of yesterday. (no standard+language)

'She remembers it like yesterday. (no standard language)'

In the Juinen's Daily, we intend to use Standard Dutch. Therefore, in articles by our journalists, you will always come across 'remember' with a reflexive pronoun.

Source: Juinen's Daily, 4 March 2022

Question 2a		Indicate how strong you consider Piet in 't Veld's reasoning to be.		
Very weak	weak	Average	Strong	Very strong
1	2	3	4	5

b Explain your answer to Question 2a.

Explanation:

Question 3a		Indicate how reliable you consider source A to be.		
Totally unreliable	Not reliable	Slightly reliable	Reliable	Very reliable
1	2	3	4	5

b Explain your answer to Question 3a.

Explanation:

Source B was written by professor of linguistics Arnold Hooft of the Open University Haarlem. Professor Hooft writes a lot about language in popular science journals, such as 'Language lives' and Language for all'. Source B is an excerpt from one of his publications. Read source B

Source B

The (dis)appearance of the reflexive pronoun...

While the word 'themselves' increasingly appears in sentences such as 'zij beseffen (zich) dat niet [they don't realise REFL.PRON that], we also see that the reflexive pronoun 'themselves' is actually disappearing, for example in the sentence 'zij herinneren hem als een inspirerende man'(they remember him as an inspiring man). According to language advice, 'to remember' should only occur with a reflexive pronoun. They do not consider 'remember' without such a pronoun to be good Dutch. But in doing so, they completely miss the point. The verb 'herinneren' (to remember) without a reflexive pronoun is actually much more correct Dutch than with one. Let me explain why.

Linguists regard a reflexive pronoun as something empty, as a kind of 'dummy': a phrase without actual meaning that occurs where the form of the sentence necessitates it. A verb like 'uitkleden' [to undress] necessarily wants to have a direct object with it, e.g. 'De moeder kleedt haar kindje uit' [The mother undresses her baby]. If that is not another person, then it should just be the reflexive pronoun 'zich', as in the sentence 'Zij kleedt zich uit' [She dresses REFL.PRON out- 'She undresses'].

So a reflexive pronoun is only needed for form. Why doesn't that just disappear? Why don't we say, like the English, 'Zij kleedt uit en ging naar bed' [She undressed and went to bed]? This is because most verbs have exactly one (direct or indirect) object. Verbs without objects (such as *laugh*) or with two objects (such as *give*) are far outnumbered. The language prefers verbs with one object, even if it is sometimes a dummy.

Now according to language advices, if we are to use 'herinneren' [to remember] with a reflexive pronoun, this verb therefore has two objects in the sentence 'hij herinnert zich iets' [he remembers REFL.PRON something- 'he remembers something'], namely the reflexive pronoun 'zich' and the object 'iets' [something]. One object too many, in other words. Therefore, we should simply omit the reflexive pronoun from such verbs, because then, finally, exactly one object (the direct object 'iets' [something]) remains.

There are also sentences that confirm that it makes more sense to use 'herinneren' [to remember] without a reflexive pronoun than with. These are sentences in which there is a personal pronoun after the reflexive pronoun, as

in the sentence 'zij herinneren zich hem als een inspirerend man' [the remember REFL.PRON him a an inspiring man- 'they remember him as an inspiring man']. Such a sentence sounds very forced with first the reflexive pronoun 'zich' and then the personal pronoun 'him', which is why people simply omit the reflexive pronoun. So the language dynamic itself already indicates that 'zich herinneren' [REFL.PRON remember- 'to remember'] is actually a very strange construction.

...

A.Hooft (2020).*The (dis)appearance of the reflexive pronoun. Language for all*, vol 49, 43-45.

Question 4

a Indicate how strong you consider Professor Hooft's reasoning to be.

Very weak	weak	Average	Strong	Very strong
1	2	3	4	5

b Explain your answer to Question 4a.

Explanation:

Question 5

a Indicate how reliable you consider source B to be.

Totally unreliable	Not reliable	Slightly reliable	Reliable	Very reliable
1	2	3	4	5

b Explain your answer to Question 3a.

Explanation:

Question 6

You have now read two sources that view the use of ‘zich herinneren’ [to REFL.PRON remember] and ‘herinneren’ [to remember] differently.

- a** After reading these sources, indicate to what extent you consider ‘Zij herinneren zich hem’ [they remember REFL.PRON him; ‘they remember him’] in the above sentence to be good Dutch.

Very bad Dutch	Bad Dutch	Doubtful Dutch	Good Dutch	Excellent Dutch
1	2	3	4	5

- b** After reading these sources, indicate to what extent you consider ‘Zij herinneren hem’ [‘they remember him’] in the above sentence to be good Dutch.

Very bad Dutch	Bad Dutch	Doubtful Dutch	Good Dutch	Excellent Dutch
1	2	3	4	5

- c** Explain your choices on Question 6a and 6b in up to 100 words. Make use of the sources you have read.

Explanation:



Appendix K

LOO-CV results

Model	Authority		Ling. Pers.	
	Predictive Power (elpd_diff)	Standard error (se_diff)	Predictive Power (elpd_diff)	Standard error (se_diff)
No random effects	0.0	0.0	0.0	0.0
Random effect school and teacher	-1.5	0.5	-0.7	1.4
Random effect teacher	-1.1	0.4	-0.4	1.2
Random effect school	-0.7	0.4	-0.6	0.4

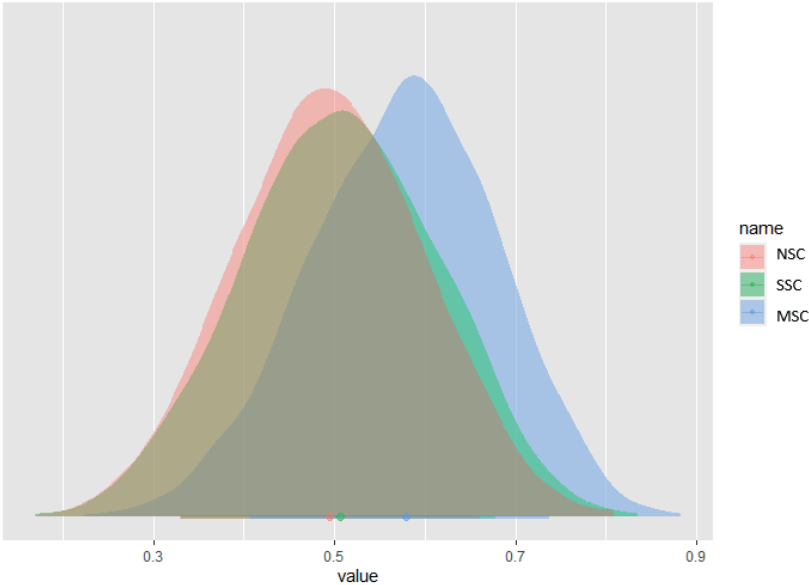
Note. If two models lead to comparable results (Deep & Regulation), the most parsimonious model is chosen.

Appendix L

Results Post-test

For the post-test, no effects of scaffolding or meta-strategic scaffolding were found for any of the outcome variables of interest as can be seen in Figure L1 and Table L1.

A. Authority



B. Language intuitions

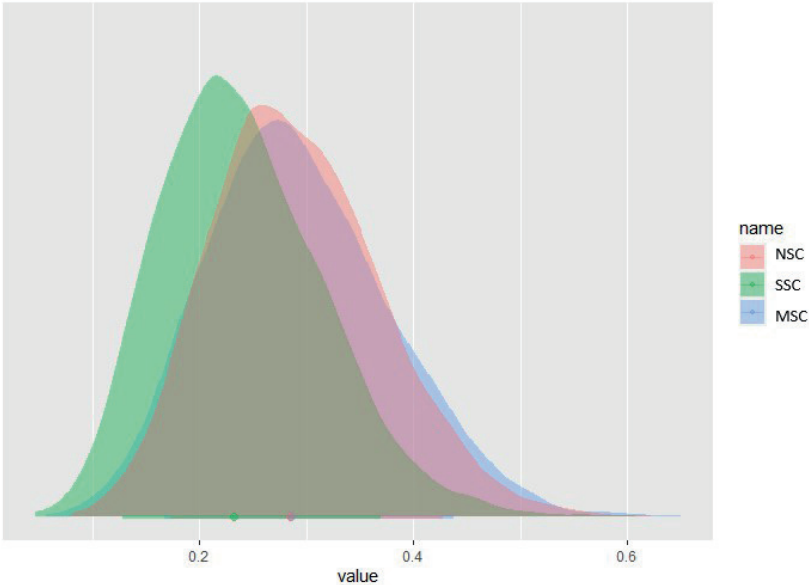
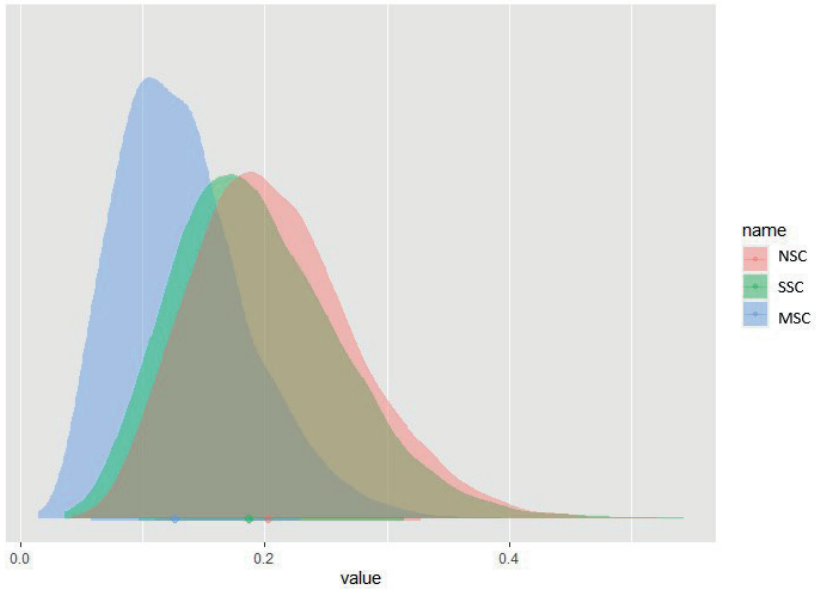


Figure L1
The distribution of referring to (A) ‘Authority’, (B) ‘Language intuitions’, (C) ‘Language reality’, and the use of (D) ‘Linguistic argumentation’ by NSC, SSC, and MSC students in the post-test.

C. Language reality



D. Linguistic argumentation

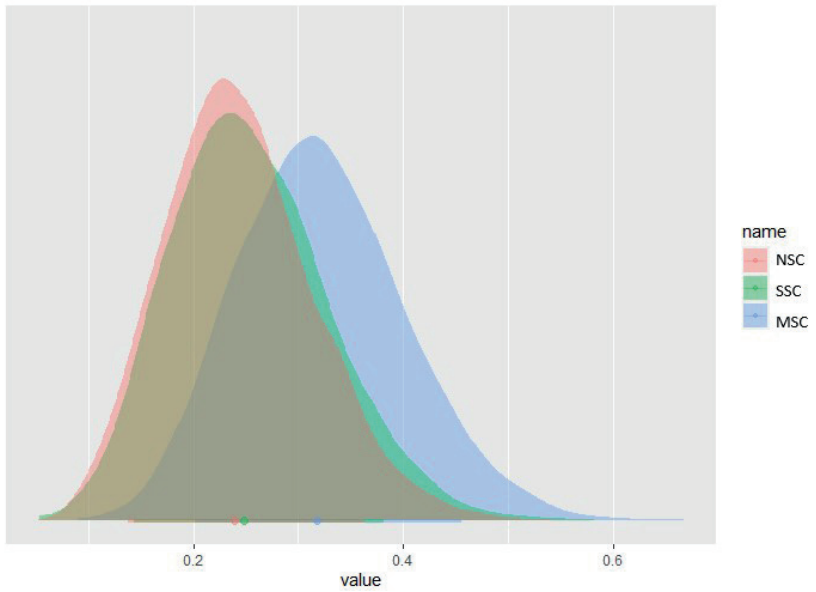


Table L1. Hypotheses tests for the mention of 'Authority', 'Language intuition', 'Language reality', and 'Linguistic argumentation' in students' explanations in the post-test

Outcome	Hypothesis	Estimated difference in probability	[95%CI]	Evid. Ratio	Post. Prob.
Authority	MSC < SSC	0.07	[-0.11,0.25]	0.36	0.26
	MSC < NSC	-0.09	[-0.28,0.06]	4.92	0.83
	SSC < NSC	-0.03	[-0.2,0.13]	1.71	0.63
Language intuition	MSC > SSC	0.04	[-0.11,0.21]	2.13	0.68
	MSC > NSC	0	[-0.17,0.16]	0.94	0.48
	SSC > NSC	-0.05	[-0.21,0.11]	0.44	0.31
Language reality	MSC > SSC	-0.06	[-0.23,0.09]	0.33	0.25
	MSC > NSC	-0.09	[-0.28,0.06]	0.2	0.17
	SSC > NSC	-0.03	[-0.2,0.13]	0.58	0.37
Linguistic argumentation	MSC > SSC	0.07	[-0.1,0.24]	2.88	0.74
	MSC > NSC	0.08	[-0.09,0.26]	4.06	0.8
	SSC > NSC	0.02	[-0.15,0.19]	1.31	0.57

Note. Table L1 explicitly shows our hypotheses and whether this hypothesis is supported based on our model and the data. For example, we see that students who received MSC have a lower probability (-0.09 lower) of referring to Authority in their explanations compared to students who received no scaffolding. The evidence ratio is the posterior probability (Post. Prob.) under the hypothesis against its alternative.

Appendix M

Sensitivity Analysis

The outcomes of the sensitivity analyses are summarized in Table M1, from which it can be seen that all models exhibit low sensitivity to prior assumptions while displaying a high degree of sensitivity to changes in likelihood (Kallioinen et al., 2024). The Figures M1, M2, M3, and M4 complement these results by presenting diagnostic plots for the models featured in Table M1. These plots illustrate the impact of altering prior (top) and likelihood (bottom) on the posterior distribution, across varying alpha values. For instance, in the upper part of the figures, no discernible prior sensitivity is observed, as evidenced by the overlapping lines. However, in the bottom section, it is evident that changes in the likelihood component, such as the inclusion of additional data points, result in a narrower and more peaked posterior distribution. In other words, the posterior is mostly reliant on the data and likelihood rather than on the weakly informative priors. This has important implications for the robustness and reliability of our findings, as it suggests that our results were primarily driven by the data and the evidence it provides, rather than by our weakly informative priors. Put plainly, the data's alignment with our model's expectations greatly outweighs any prior beliefs or assumptions reflected in the weakly informative priors in influencing our conclusions. This trend holds true for all the models examined in this study.

Table M1. The outcomes of the sensitivity analyses

Authority		Linguistic argumentation				Language intuition				Language reality			
Parameter	Prior	Prior Sensitivity	Likelihood Sensitivity	Prior	Prior Sensitivity	Likelihood Sensitivity	Prior on the Logit Scale	Prior Sensitivity	Likelihood Sensitivity	Prior	Prior Sensitivity	Likelihood Sensitivity	
β Intercept	N(0,1.5)	.029	.063	N(-1.5,1.5)	.037	.076	N(-1,1.5)	.006	.078	N(-1,1.5)	.023	.071	
β Pre-test	N(0.5,1)	.030	.071	N(0.5,1)	.028	.068	N(0.5,1)	.019	.071	N(0.5,1)	.046	.071	
β SSC	N(0,1.5)	.036	.085	N(0,2.5)	.031	.077	N(0,2.5)	.007	.079	N(0,2.5)	.012	.087	
β MSC	N(0,1.5)	.046	.072	N(0,2.5)	.035	.073	N(0,2.5)	.005	.081	N(0,2.5)	.011	0.76	

Figure M1
Authority

Power-scaling sensitivity

Posterior density estimates depending on amount of power-scaling (α).
Overlapping lines indicate low sensitivity.
Wider gaps between lines indicate greater sensitivity.
Estimates with Pareto-k values > 0.5 may be inaccurate.

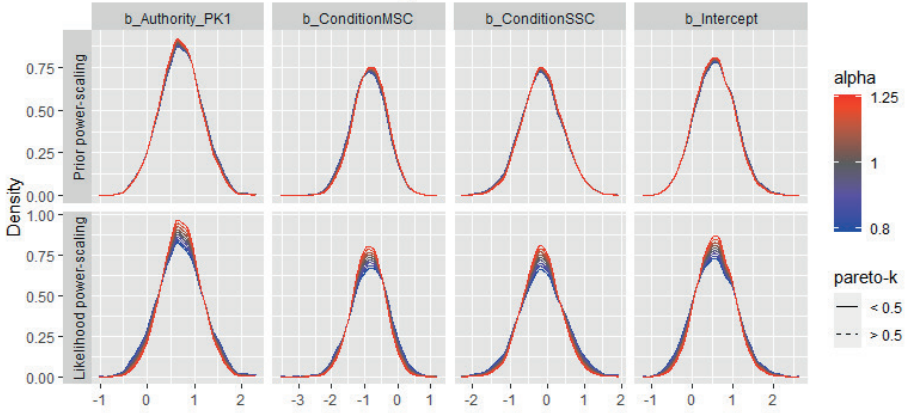


Figure M2
Linguistic argumentation

Power-scaling sensitivity

Posterior density estimates depending on amount of power-scaling (α).
Overlapping lines indicate low sensitivity.
Wider gaps between lines indicate greater sensitivity.
Estimates with Pareto-k values > 0.5 may be inaccurate.

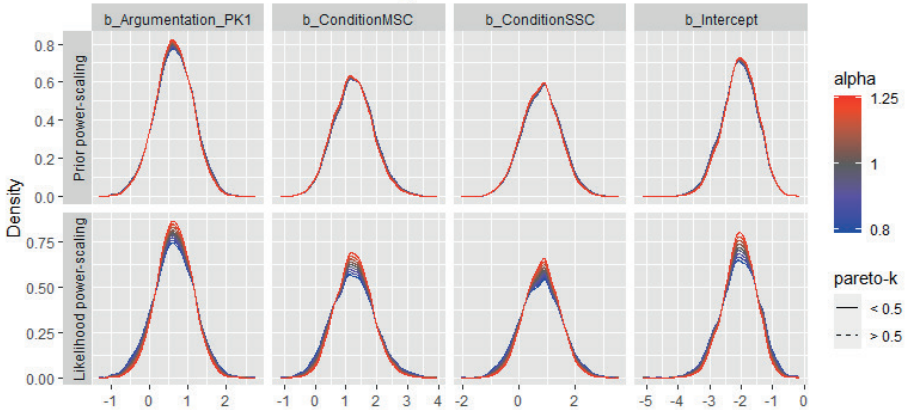


Figure M3
Language intuition

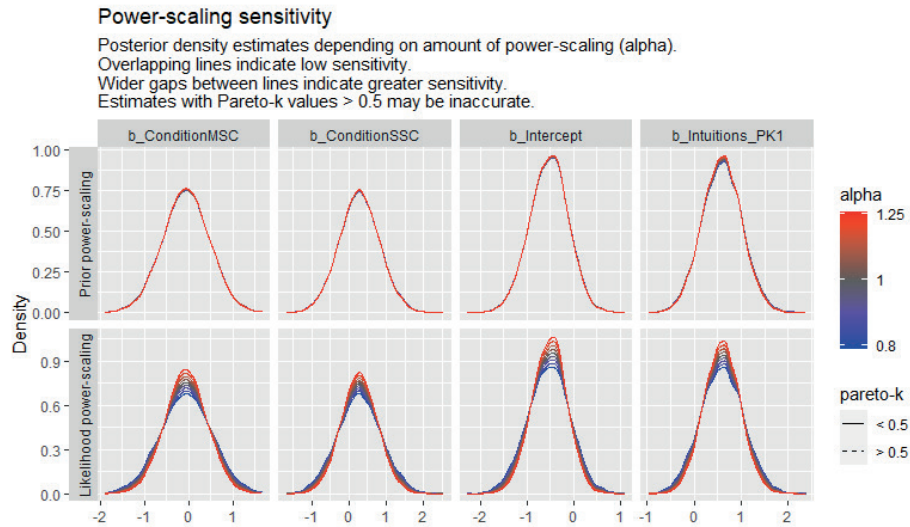
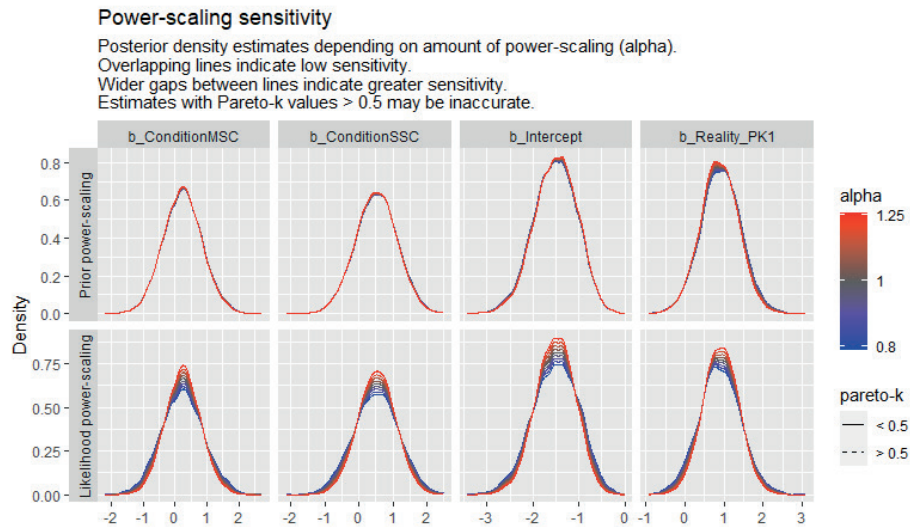


Figure M4
Language reality



Nederlandse samenvatting

In dit promotieonderzoek heb ik onderzocht hoe taalkundige bronnen ingezet kunnen worden om leerlingen te leren redeneren over taal en daarmee hun reflectieve denken over taal te ontwikkelen. Nieuwe ontwikkelingen in het grammaticaonderwijs richten zich meer op het *redeneren* over taal dan op het vinden van het juiste antwoord. Dit redeneren over taal leidt ertoe dat leerlingen niet alleen leren wat goed of fout is in taal, maar ze leren ook dat er variatie bestaat in taal, dat taal continu aan verandering onderhevig is, dat het afhangt van de context welke vorm gebruikt wordt en dat een andere vorm ook een andere betekenis kan oproepen. Dit vergroot hun reflectieve houding ten opzichte van taal en bevordert een groter taalbewustzijn. Hedendaagse onderwijsvernieuwingen in Nederland, maar ook wereldwijd, benadrukken het belang van taalbewustzijn bij leerlingen.

In mijn proefschrift laat ik zien dat redeneren over taal vanuit drie perspectieven mogelijk is. Ten eerste is er het perspectief van de taalnorm. Bij de taalnorm gaat het om hoe het hoort: de regels die leerlingen op school leren. Niet voor alle taalkwesties zijn er regels vastgelegd. De regels die wel vastgelegd zijn, hebben meestal betrekking op taalkwesties waaraan taalgebruikers zich veel ergeren, zoals het gebruik van 'als' in zinnen als 'aardbeienjam is lekkerder als pruimenjam'. De taalnorm geeft dan aan dat bij de vergrotende trap niet 'als' maar 'dan' moet worden gebruikt. Ten tweede is er het perspectief van de taalwerkelijkheid. Hoe wordt taal in de 'echte wereld' om ons heen gebruikt? Daar merken we dat naast de voorgeschreven varianten ook veel natuurlijke varianten gebruikt worden. Zo wordt naast 'ze' of 'zij' als onderwerp in het meervoud ('zij staan voor de deur') ook door Nederlandse taalgebruikers 'hun' als onderwerp gebruikt ('hun staan voor de deur'). Deze taalvariatie wordt door veel taalgebruikers afgekeurd en als een grote taalergernis ervaren, maar er zijn ook taalvariaties waarbij die taalergernis nauwelijks aanwezig is, zoals het geval is bij verkortingen als 'woonminister' in plaats van 'minister van volkshuisvesting'. Het derde perspectief betreft het perspectief van het taalgevoel, onze onbewuste kennis over taal. Onbewust weten sprekers van het Nederlands dat de woordgroep 'de lekkere pruimenjam' correct is en 'pruimenjam lekkere de' niet. Maar het perspectief van het taalgevoel botst vaak met de andere perspectieven: mensen vinden vanuit hun taalgevoel bijvoorbeeld 'aardbeienjam is lekkerder als pruimenjam' prima, terwijl het vanuit de taalnorm fout is. Of ze keuren juist vanuit hun taalgevoel 'Hun staan voor de deur' af, terwijl het in de taalwerkelijkheid vaak voorkomt.

Taalkundige bronnen kunnen leerlingen helpen bij het bestuderen van taal vanuit deze drie perspectieven. Door introspectie kunnen zij hun eigen taalgevoel te

onderzoeken. Het gaat dan om vragen als ‘Wat zeg of schrijf ik zelf?’, ‘Klinkt deze vorm grammaticaal voor mij?’. De taalwerkelijkheid kunnen leerlingen onderzoeken in databestanden van geschreven taal, zoals het krantencorpus Delpher.nl of in databestanden van gesproken taal, zoals het Corpus Gesproken Nederlands. In deze databestanden kunnen leerlingen zoeken welke varianten in het Nederlands gebruikt worden. Deze bronnen worden *primaire* taalkundige bronnen genoemd. Ook het internet, waar je met bijvoorbeeld Google kan opzoeken hoe een bepaald woord geschreven moet worden, is een *primaire* bron.

Daarnaast bestaan er ook *secundaire* taalkundige bronnen. Dit zijn bronnen waarin over taal geschreven wordt. Hierin onderscheiden we bronnen waarin de taal wordt voorgeschreven (*prescriptieve* bronnen), en bronnen waarin de taal wordt beschreven (*descriptieve* bronnen). In lesmethodes staat beschreven wat de taalnorm is. Vaak is de regel scherp gesteld zodat het risico op het maken van fouten voor leerlingen beperkt wordt. Zo verbieden lesmethodes zinnen als ‘Na een dik uur in de oven gelegen te hebben, aten wij de quiche met smaak op’. Volgens een klassieke schoolregel zou je ‘na een dik uur in de oven gelegen hebben’ alleen maar kunnen lezen als ‘Nadat wij een dik uur in de oven gelegen hebben’, omdat ‘wij’ het onderwerp is in de hoofdzin. Met deze uitleg worden leerlingen behoed voor ongrammaticale zinnen zoals hierboven, maar gaan ze voorbij aan zinnen als ‘Miauwend troffen wij de kat aan’, die door voor veel taalgebruikers zonder bezwaar gebruikt kan worden. Taalgebruikers interpreteren deze zin ‘Terwijl de kat miauwt, troffen wij de kat aan’ en niet als ‘Terwijl wij miauwen, troffen wij de kat aan’. Volgens de strikte regel in lesmethodes is deze laatste interpretatie de juiste.

Andere *secundaire* taalkundige bronnen zijn taaladviesdiensten van bijvoorbeeld Onze Taal of van de Taalunie. Deze taaladviezen zijn *prescriptief* – zij geven aan wat goed is volgens de taalnorm –, maar daarnaast zijn zij ook *descriptief* – zij beschrijven ook de taalwerkelijkheid door aan te geven welke andere varianten ook voorkomen. Het komt ook voor dat deze diensten aangeven dat een taalvraag niet eenduidig beantwoord kan worden. Dan staan er zinsneden in als ‘Het heeft de voorkeur...’, ‘Wat ons betreft...’, ‘...bij dit soort (...) kwesties mag er niet van fouten gesproken worden’. Taaladviezen zijn in veel gevallen afgeleid van de *Algemene Nederlandse Spraakkunst* (ANS). Deze grammatica beschrijft de taalwerkelijkheid, waarbij de auteurs gebruikmaken van labels om lezers te informeren over de stilistische waarde van varianten of over de geografische verspreiding van varianten. In het voorwoord staat te lezen dat in de ANS geen *prescriptief* advies geeft, maar wel vaak zo gebruikt wordt. Tot slot zijn er ook nog vele publicaties over taalverschijnselen, van populair tot wetenschappelijk. In dergelijke publicaties kan een taalkwestie vanuit de taalnorm,

de taalwerkelijkheid en/of het taalgevoel van de auteur beschouwd worden. Ook die publicaties zijn secundair omdat ze over taal schrijven.

Om te leren redeneren over taal zijn taalkundige bronnen heel geschikt. Primaire taalkundige bronnen zoals taalcorpora kunnen leerlingen laten zien dat de taalwerkelijkheid gevarieerder is dan de voorgeschreven taalnorm doet vermoeden. Dit kan leerlingen tot inzicht brengen dat hun eigen taalgevoel misschien eerder overeenkomt met het taalgevoel van andere mensen dan met die taalnorm. Secundaire taalkundige bronnen beschrijven vaak spanningen tussen de voorgeschreven taalnorm en de wijze waarop mensen in werkelijkheid taal gebruiken. Bewustwording van deze beschreven spanningen kan het reflectieve denken over taal in gang zetten, wat betekent dat leerlingen verder over een taalkwestie leren nadenken in plaats van zich alleen te richten op wat goed en wat fout is.

Een veelgebruikt model voor reflectief denken is dat van King en Kitchener (1997), waarin drie ontwikkelingsniveaus worden onderscheiden: pre-reflectief denken, quasi-reflectief denken en reflectief denken. Dit denken wordt bepaald door de *epistemische* houding. Hiermee wordt de houding bedoeld die je als mens aanneemt over hoe kennis over een bepaald vak tot stand komt. Die epistemische houding kan zijn dat je aanneemt dat kennis vastligt, maar kan ook inhouden dat je van mening bent dat kennis continue geconstrueerd wordt. Die houding kan bij leerlingen ontwikkeld worden door ze te confronteren met kwesties die niet eenvoudig op te lossen zijn. Leerlingen zien dan dat kennis niet vast hoeft te staan en ze worden zo uitgedaagd om de kwestie te onderzoeken en zelfstandig afwegingen te maken. Taal is bij uitstek een domein dat ze goed laat onderzoeken. Veel taalkwesties zijn ‘rommelig’ en omdat zij in tegenstelling tot wat op school onderwezen wordt, geen eenduidige oplossing kennen, zijn ze zeer geschikt om reflectief denken te stimuleren. Wanneer leerlingen met zo’n rommelige taalkwestie geconfronteerd worden, kunnen zij op drie manieren reageren afhankelijk van hun epistemische houding.

Er zijn leerlingen die op zoek gaan naar die ene regel. Zij volgen het lesboek of de docent, of zoeken op een taaladviesite naar de juiste regel. Deze leerlingen gaan ervan uit dat kennis vaststaat. Leerlingen die op zoek gaan naar de juiste regel, zijn *pre-reflectieve* denkers. Zij staan aan het begin van de ontwikkeling van het reflectief denken.

Reflectieve denkers, zoals taalexperts, hebben daarentegen de epistemische houding dat kennis niet vaststaat, maar geconstrueerd moet worden in een continue proces. Zij erkennen de spanning tussen taalnorm, taalwerkelijkheid en taalgevoel, houden

rekening met contextverschillen en maken vergelijkingen met verwante taalkwesties. Het ontbreken van een eenduidige oplossing leidt bij hen niet tot twijfel, maar juist tot kritisch en creatief denken. Reflectieve denkers analyseren de kwestie vanuit verschillende perspectieven, formuleren een weloverwogen oplossing en onderbouwen die met taalkundige argumenten.

Tussen het niveau van pre-reflectief denken en het reflectief denken is er een niveau dat lijkt op het niveau van reflectief denken, maar op dit niveau ontbreekt het de leerder aan evaluatievaardigheden om verschillende invalshoeken van een rommelig probleem in overweging te nemen. Dit is het niveau van *quasi-reflectief* denken. Quasi-reflectieve denkers zijn in hun epistemische houding over taal meer ontwikkeld dan pre-reflectieve denkers, omdat zij zich ervan bewust zijn dat meerdere taalvarianten naast elkaar kunnen bestaan of dat er meerdere analyses mogelijk zijn voor een taalkwestie. Maar omdat zij nog niet goed verschillende argumenten of perspectieven kunnen afwegen, leidt dit bij hen tot verwarring en onzekerheid. Quasi-reflectieve denkers reageren dan op twee manieren: (a) ze concluderen dat alles mogelijk is, of (b) ze formuleren een regel die in alle situaties lijkt te werken. Uit onderzoek blijkt dat de ontwikkeling van het reflectief denken op gang komt aan het einde van de middelbareschooltijd.

In dit promotieonderzoek heb ik onderzocht hoe leerlingen gestimuleerd kunnen worden hun reflectieve denken over taal te ontwikkelen door taal te beschouwen vanuit de perspectieven van taalgevoel, taalwerkelijkheid en taalnorm. Taalkundige bronnen dienen hierbij als hulpmiddel om deze drie perspectieven te onderzoeken. De hoofdvraag van dit onderzoek luidde: *Hoe draagt het gebruik van taalkundige bronnen in pre-universitair grammaticaonderwijs bij aan de ontwikkeling van reflectief denken over taal bij studenten?*

Om deze vraag te beantwoorden zijn de volgende drie deelvragen onderzocht:

1. Hoe kan het reflectieve denken van docenten en leerlingen over taal gekarakteriseerd worden in het huidige grammaticaonderwijs?
2. Wat zijn pedagogische middelen om leerlingen op een meer reflectieve manier te leren denken over de werking en structuur van taal, en hoe ervaren docenten de klassikale implementatie van deze pedagogische middelen?
3. Welke didactische ondersteuning is nodig om het reflectief denken van leerlingen te stimuleren wanneer ze geconfronteerd worden met tegenstrijdige bronnen over een taalkwestie?

Karakterisering van het reflectieve denken van docenten en leerlingen over taal in het huidige grammaticaonderwijs

Deelstudie 1: De overtuigingen van leraren Nederlands over reflectief denken en (meta-) conceptuele kennis in grammaticaonderwijs

De eerste deelvraag is onderzocht door middel van twee studies. In de eerste studie, hoofdstuk 2 van dit proefschrift, is met behulp van een vragenlijst bij 110 leraren (37 vmbo-leraren en 73 havo/vwo-leraren) hun reflectief denken over grammaticaonderwijs onderzocht. Dit is gedaan vanuit de achterliggende gedachte dat als docenten niet positief staan achter vernieuwingen die dit soort denken propaganderen, implementatie van deze vernieuwingen lastig kan worden. De vragenlijst is gebaseerd op een gevalideerde vragenlijst voor geschiedenisonderwijs, aangevuld met vragen over het gebruik van taalkundige bronnen door henzelf en in de klas. Aangezien meer reflectiviteit ook meer kennis vereist, zijn de leraren ook ondervraagd over hun kennis en toepassing van grammaticale metaconcepten, zoals *congruentie*, *predicatie* en *valentie*. Tot slot zijn leraren bevraagd over hun tevredenheid over lesmethodes.

Uit de resultaten kwam naar voren dat het merendeel van de docenten getypeerd kan worden als (quasi-)reflectief. Van de 110 docenten konden er 53 gekarakteriseerd worden als reflectieve denkers en 44 als quasi-reflectieve denkers. Slechts 13 docenten konden gekarakteriseerd worden als pre-reflectieve denkers. Er waren wel verschillen tussen verschillende groepen docenten. Eerstegraads docenten scoorden hoger op items over reflectief denken dan tweedegraads docenten. Docenten die op havo/vwo niveau lesgeven, scoorden ook hoger op items over reflectief denken dan docenten die op vmbo niveau lesgeven. Er is geen resultaat gevonden van het aantal jaren leservaring op de mate van reflectiviteit. Wat het gebruik van taalkundige bronnen betreft, gaven 106 docenten aan deze zelf te gebruiken. Het raadplegen van taalkundige bronnen door leerlingen in de klas werd door 58 leraren gemeld.

Wat betreft grammaticale metaconcepten bleek het aantal jaren onderwijservaring van de docenten niet uit te maken. Wel bleken eerstegraads docenten meer bekend te zijn met de gevraagde metaconcepten dan tweedegraads docenten, en havo/vwo-docenten meer dan vmbo-docenten. Echter, de kennis van de docenten in zijn algemeenheid bleek beperkt te zijn. Zij gaven wel aan kennis te hebben van concepten die bekend zijn in het traditionele grammaticaonderwijs zoals *congruentie* en *woordvolgorde*, maar ze bleken minder vertrouwd te zijn met concepten uit de moderne taalkunde zoals *predicatie* en *valentie*. Uit stellingen waarin het gebruik van

de meta-concepten *predicatie* en *valentie* bevraagd werd, bleek dat docenten deze meta-concepten in hun lessen dan ook nauwelijks toepasten.

Wat betreft de waardering voor lesmethodes bleken docenten redelijk positief te zijn. Echter, sommige docenten rapporteerden wel negatief over de beperkte didactiek van de lesmethodes of de beperkte aandacht voor de ontwikkeling van taalkundig inzicht bij leerlingen.

Naast de vragenlijst zijn ook de grammaticahoofdstukken geanalyseerd van de twee meest gangbare lesmethodes voor havo/vwo en vmbo, te weten 'Op Niveau' en 'Nieuw Nederlands'. Omdat lesmethodes in Nederland geschreven worden door docenten, kunnen zij ook als graadmeter dienen om te zien wat docenten belangrijk vinden. De lesmethodes zijn geanalyseerd op de aanwezigheid van opdrachten die appelleren aan de hogereordenkniveaus van Bloom (1956), te weten *analyseren*, *evalueren* en *creëren*. Zulke opdrachten lokken eerder een vorm van reflectief denken uit dan opdrachten van de lagereorde-denkniveaus *reproducen*, *begrijpen* en *toepassen*. De lesmethodes zijn ook geanalyseerd op de mate waarin taalkundige metaconcepten voorkwamen.

Uit de analyse kwam naar voren dat bijna alle opdrachten betrekking hebben op het lagereordendenken, waardoor er geen aanknopingspunten waren voor enig reflectief denken bij de leerlingen. Er was geen verschil tussen schoolniveaus. De aangetroffen metaconcepten sloten vooral aan bij de concepten uit de traditionele grammatica. Er werden enkele concepten uit de moderne taalkunde aangetroffen, zoals *constituentstructuur*. Ook was er een enkele verwijzing naar *predicatie* of *valentie*.

Op basis van de vragenlijst en de lesmethodeanalyse kon de conclusie getrokken worden dat docenten, en dan met name havo/vwo-docenten, als (quasi-)reflectieve denkers gecategoriseerd konden worden en openstaan voor meer taalkundige kennis in de grammaticalesen, maar de geanalyseerde lesmethodes bieden hiervoor geen opening. Wel opvallend was dat docenten die blijk geven van meer conceptuele kennis ook hoger scoorden als het ging om reflectief denken. Ook was opmerkelijk dat docenten zelf wel taalkundige bronnen raadplegen, maar deze minder vaak in de klas inzetten. Een voorbehoud bij deze resultaten is dat ze gebaseerd zijn op gerapporteerde kennis. Het zou kunnen dat de praktijk in de klas toch anders is dan de leraren het zelf ervaren hebben.

Deelstudie 2: Epistemische overtuigingen over grammatica van leerlingen en taalkundige experts.

In de tweede studie, hoofdstuk 3 van dit proefschrift, zijn met behulp van een vragenlijst de epistemische overtuigingen van leerlingen onderzocht die aan de basis liggen van het reflectief denken. Aan dit onderzoek deden 300 leerlingen mee: 128 leerlingen uit het 5e jaar aso in België (Vlaanderen), 119 leerlingen uit 5 vwo en 53 leerlingen uit 6 vwo in Nederland. Ook vulden zeven taalkunde-experts de vragenlijst in. Als uitgangspunt voor dit onderzoek is de vragenlijst van Stoel e.a. (2017) gebruikt voor geschiedenisonderwijs. Deze vragenlijst van 26 items is omgezet naar het grammaticaonderwijs.

Uit statistische analyse van de gegevens van de leerlingen kwam naar voren dat binnen de 26 items twee hoofdgroepen te onderscheiden waren, die elk 5 items betroffen. De ene groep van 5 items kon gekarakteriseerd worden als *convergent denken*, denken naar een enkelvoudige oplossing; de andere groep van 5 items kon gekarakteriseerd worden als *divergent denken*, het denken over verschillende invalshoeken.

Vervolgens zijn de resultaten van de leerlingen onderling vergeleken op deze 10 items en de resultaten van leerlingen zijn vergeleken met die van de experts. De leerlingen scoorden items over het divergent denken hoger dan over convergent denken. Dit zou kunnen betekenen dat leerlingen inzien dat divergent denken nodig is om tot kennis te komen, dus ook bij grammatica. Het feit dat er geen verschil zichtbaar was tussen de mate van divergent denken tussen leerlingen uit 5 vwo en 6 vwo, zou deze conclusie kunnen ondersteunen. In de lijn der verwachting scoorden de experts de items over divergent denken hoger dan de leerlingen. Dit zou het verschil kunnen duiden tussen academisch denken over grammatica en het schoolse denken over grammatica.

Wat het convergente denken betreft scoorden de experts ook in lijn der verwachting lager dan de leerlingen. Wat betreft de leerlingen was er een verschil tussen de verschillende groepen. Nederlandse leerlingen uit 6 vwo scoorden lager op convergent denken dan Nederlandse leerlingen uit 5 vwo, die op hun beurt weer lager op convergent denken scoorden dan Belgische leerlingen uit het 5^e jaar aso. Het verschil tussen leerlingen uit 5 en 6 vwo zou verklaard kunnen worden door een mogelijke ontwikkeling in hun reflectieve denken. Dat de experts nog minder affiniteit hadden met items over convergent denken zou deze conclusie kunnen ondersteunen. Het verschil tussen leerlingen uit 5 vwo en uit het 5^e jaar aso zou zijn verklaring kunnen vinden in de plaats van grammatica in het curriculum. Waar in Nederland grammatica alleen wordt onderwezen in de onderbouw, wordt in België grammatica onderwezen tot en met het eindexamen. Dit zou kunnen verklaren

waarom Belgische leerlingen meer gefocust zijn op eenvoudige antwoorden dan Nederlandse leerlingen. Een andere verklaring zou gelegen kunnen zijn in de status van het Standaardnederlands in België, dat geassocieerd is met correct taalgebruik en dus meer in lijn is met convergent denken.

Uit deze studie komt in ieder geval naar voren dat de omzetting van de vragenlijst van Stoel e.a. (2017) een instrument oplevert dat een duidelijk verschil laat zien tussen middelbare scholieren en experts, en in mindere mate een verschil tussen verschillende categorieën scholieren. Het lijkt erop dat de afname van de affiniteit met convergent denken gezien kan worden als een ontwikkeling naar meer expertdenken over grammatica. De kloof tussen de overtuigingen van studenten over divergent denken over grammatica en de overtuigingen van experts zou toegeschreven kunnen worden aan het niveau van academisch denken door experts.

Als antwoord op de eerste onderzoeksvraag van dit proefschrift - *Hoe kan het reflectieve denken van docenten en leerlingen over taal gekarakteriseerd worden in het huidige grammaticaa onderwijs?* – toonde de eerste studie aan dat docenten positief staan tegenover reflectief denken over grammaticaa onderwijs in de klas. Ze staan open voor het implementeren van activiteiten die reflectief denken bevorderen. De tweede studie liet zien dat vergeleken met taalkunde-experts leerlingen in hun epistemische overtuigingen over grammatica meer convergent en minder divergent denken. Hoewel leerlingen lijken te geloven dat divergent denken nodig is om kennis te construeren, houden ze toch sterk vast aan convergent denken om tot een correct antwoord of correcte analyse te komen. Dit geeft aan dat leerlingen eerder op het niveau van pre-reflectief denken functioneren dan op het niveau van reflectief denken als het om grammatica gaat.

Het ontwikkelen en uittesten van didactische middelen om leerlingen te onderwijzen hoe op een meer reflectieve manier te redeneren over de werking en structuur van taal

Deelstudie 3: Didactische middelen om leerlingen op een meer reflectieve manier te laten redeneren over de werking en structuur van taal door hogere ordenkvaardigheden in te zetten.

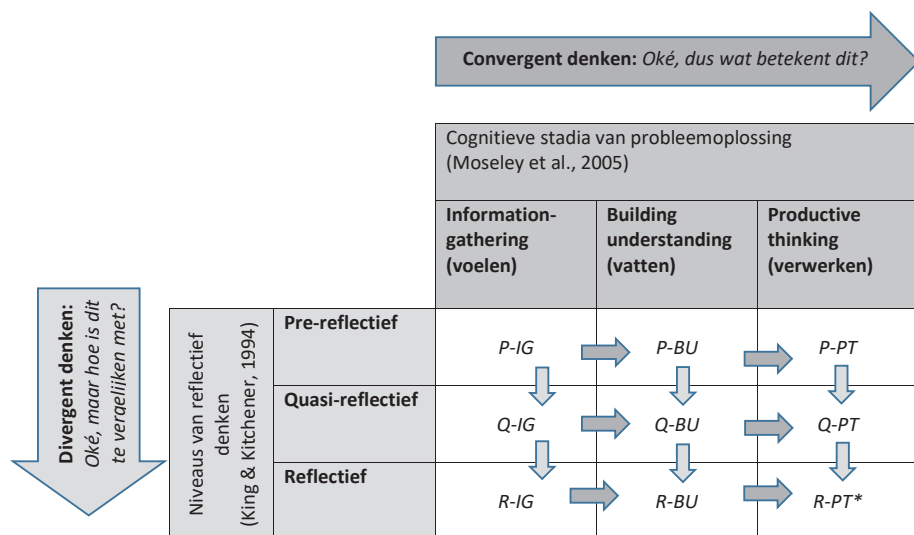
In de derde deelstudie van dit proefschrift, hoofdstuk 4, is een model ontwikkeld om het denken over taal te stimuleren. Hieraan ligt het model van Moseley e.a. (2005) ten grondslag. Dit model beschrijft drie stadia die mensen doorlopen wanneer zij problemen proberen op te lossen. Het eerste stadium van *information gathering*, door Coppen (2011) in het Nederlands vrij vertaald als ‘voelen’, betreft het ophalen

van informatie over een probleem door waarneming of uit het eigen geheugen door bijvoorbeeld de vraag te stellen ‘*Wat weet ik er al zelf over?*’. In het daaropvolgende stadium van *building understanding*, door Coppen (2011) vrij vertaald als ‘vatten’, wordt de verzamelde informatie uit het vorige stadium verder uitgewerkt om grip te krijgen op het probleem door vragen te stellen als ‘*Hoe kan ik het probleem herformuleren?*’ of ‘*Hoe kan ik het probleem verder onderzoeken?*’. In dit stadium gaat het om het manipuleren van taal, zoals een woord in een zin te plaatsen of woordvolgorde van een zin te veranderen. Ook het onderling uitwisselen van ideeën om het probleem beter te begrijpen kan tot dit stadium gerekend worden. Het laatste stadium *productive thinking* betreft het hogereordedenken, door Coppen (2011) vrij vertaald als ‘verwerken’. In dit stadium komt een leerder tot dieper begrip door bijvoorbeeld over het probleem te redeneren, kritisch of creatief te denken vanuit de vraag ‘*Hoe kan ik dit probleem beschouwen?*’. Boven op deze drie stadia situeren Moseley e.a. (2005) een laag van reflectief en strategisch denken. Deze laag gaat over bewustwording van *hoe* je over een bepaald probleem denkt. Dit denken beïnvloedt elk proces in de stadia van de hierboven geschetste ontwikkeling van *voelen*, *vatten* en *verwerken*. In tegenstelling tot de cognitieve vaardigheden uit de drie denkstadia, die automatisch en zonder reflectief en strategisch denken kunnen worden uitgevoerd, is reflectief en strategisch denken bewust en kan dit denken alleen worden toegepast samen met de cognitieve vaardigheden.

In deze derde studie is de strategische en reflectieve laag verder uitgewerkt met het model over reflectief denken van King en Kitchener (1994). Hierdoor is er een matrix ontstaan met de drie cognitieve stadia van probleemoplossing (*voelen*, *vatten* en *verwerken*) gecombineerd zijn met de drie niveaus van reflectief denken (*pre-reflectief*, *quasi-reflectief* en *reflectief denken*) (zie Figuur 1). Zo karakteriseren de negen ontstane vakjes elk een niveau van cognitief stadium van probleemoplossing en reflectief denken. De wijze waarop iemand een taalkwestie onderzoekt, hangt nauw samen met het niveau van reflectief denken, of anders gezegd met de epistemische opvattingen van die persoon. Zo zal bij een pre-reflectieve denker de nadruk liggen op het vinden van de juiste oplossing, terwijl bij een reflectieve denker verschillende argumenten worden verzameld uit verschillende contexten en perspectieven om tot een weloverwogen afweging te komen. De cognitieve stadia kunnen gezien worden als het convergent denken, waarbij het denkproces doelgericht is om tot een oplossing te komen door de vraag te stellen ‘*Oké, dus wat betekent dit?*’. De reflectieve niveaus kunnen gezien worden als het divergent denken, waarbij op elk niveau steeds meer context en meer perspectieven onderzocht worden door de vraag te stellen ‘*Oké, maar hoe is dit te vergelijken met...?*’. Op die manier kunnen de nodige argumenten verzameld worden om uiteindelijk via evaluatie te komen tot een onderbouwde afweging.

Leerlingen kunnen door de matrix ‘wandelen’ in zowel horizontale als verticale richting. Startende in het eerste vakje P-IG (figuur 1) kunnen leerlingen ervaren dat een taalprobleem niet eenvoudig op te lossen is omdat er bijvoorbeeld frictie bestaat tussen hun eigen taalgevoel en de taalnorm. Als leerlingen de correcte regel willen ontdekken, kunnen zij de verdere *vatten*- en *verwerken*-opdrachten van het pre-reflectieve niveau doorlopen (*P-BU* en *P-PT*). Deze opdrachten hebben tot doel leerlingen niet alleen tot een juiste oplossing te laten komen, maar ook om een start te maken met het toepassen van kennis en het onderzoeken van hun eigen taalgevoel om over dit soort taalproblemen na te denken. In de opdracht op dit pre-reflectieve niveau raadplegen leerlingen taaladviezen. Omdat taaladviezen zich niet alleen uitspreken over de voorgeschreven variant, maar ook over varianten die geaccepteerd zijn, worden leerlingen ‘verleid’ om dieper over deze kwestie na te denken. Leerlingen die na de startopdracht P-IG, vergelijkbare taalkwesties willen onderzoeken (lees: *voelen*), kunnen verdergaan op quasi-reflectief denkniveau met opdracht Q-IG. Wanneer zij vervolgens op quasi-reflectief niveau hun weg door de matrix vervolgen, kunnen zij bijvoorbeeld door middel van corpusonderzoek onderzoeken in het stadium van *vatten* hoe deze kwestie in de taalwerkelijkheid voorkomt en of dit op gespannen voet staat met de taalregels en/of hun eigen taalgevoel. Door leerlingen vanuit meer perspectieven en met meer bronnen de kwestie te laten onderzoeken, kunnen zij in het stadium van *verwerken* zelf afwegen hoe ze kunnen omgaan met deze kwestie. Leerlingen die opdrachten maken op reflectief niveau krijgen opdrachten waarmee zij uitgedaagd worden op meer expertniveau over taal na te denken. Hun denken is eerder te typeren als divergent dan als convergent. Zij raadplegen en vergelijken verschillende soorten taalkundige bronnen om verschillende argumenten voor en tegen een bepaalde analyse te verzamelen en uiteindelijk te evalueren. De taalkundige bronnen verschaffen leerlingen niet alleen een breed beeld van de taalwerkelijkheid, maar dienen ook als model hoe experts over taal redeneren.

Om leerlingen te ondersteunen in hun redeneren over taal zijn in deze studie hulpkaarten voorgesteld die leerlingen kunnen inzetten om tips te krijgen hoe over taal te redeneren. Hierbij moet gedacht worden aan het manipuleren van woorden (zoals verkleinen of in het meervoud zetten), van woordvolgordes, maar ook aan instructies hoe een taalkundige bron gebruikt kan worden of aan een verklarende woordenlijst bij een bron.



Figuur 1. Matrix voor een nieuwe grammaticadidactiek*.

* Bijvoorbeeld: P-IG betekent: Op het pre-reflectieve niveau het stadium van 'information gathering'; Q-BU betekent: Op het quasi-reflectieve niveau het stadium van 'building understanding'; R-PT betekent: Op het reflectieve niveau het stadium van 'productive thinking'.

Deelstudie 4: De ervaring van docenten met de implementatie van de nieuwe grammaticadidactiek en het gedrag van leerlingen wanneer zij hiermee werken

Deze matrix voor een nieuwe grammaticadidactiek is vervolgens in de praktijk uitgetest, waarbij de vraag centraal stond hoe docenten de klassikale implementatie van deze pedagogische middelen ervaren. In hoofdstuk 5 wordt beschreven hoe in deze studie is samengewerkt met drie docenten, een lerarenopleider, en een curriculumontwikkelaar uit Vlaanderen in een professionele leergemeenschap. Volgens de methode van *Lesson Study* is lesmateriaal ontwikkeld en uitgetest in twee cycli waarin 78 leerlingenuit het 5^e leerjaar aso deelnamen. Eerst is het ontwikkelde materiaal in de klas van een docent uit de professionele leergemeenschap uitgetest. Tijdens de les zijn drie leerlingen geobserveerd, die na de les zijn geïnterviewd. Vervolgens is de les uitgebreid geëvalueerd met de leden uit de professionele leergemeenschap. Op basis van die evaluatie is de les herzien en uitgetest in een les van een andere docent uit de leergemeenschap. Ook in die les zijn drie leerlingen geobserveerd en geïnterviewd. Vervolgens is ook de tweede les uitgebreid geëvalueerd en weer herzien. Deze definitieve les is vervolgens weer in twee klassen gegeven. Tijdens alle lessen werkten de leerlingen in groepen van drie leerlingen in een *chatroom* met de ICT-tool *Backchannelchat.nl*, te vergelijken met *WhatsApp*. De discussie tussen de leerlingen verliep daardoor volledig online.

Om de onderzoeksvraag van dit hoofdstuk te beantwoorden zijn de evaluaties van de docenten in cyclus 1 en 2 kwalitatief geanalyseerd. In de definitieve les zijn de *chats* van de leerlingen geanalyseerd op a) hun onderbouwing om voor een volgende opdracht in de matrix te kiezen, b) het gebruik van taalkundige terminologie en c) op hun antwoorden op de vraag hoe ze de les ervaren hadden en wat ze geleerd hadden.

In de voorbereidingsfase is de matrix voor de nieuwe grammaticadidactiek uitvoerig besproken. Ten eerste werd besloten alle leerlingen te laten starten met de eerste opdracht in het stadium *voelen* op pre-reflectief niveau (P-IG) waarin leerlingen vanuit hun eigen taalgevoel een start zouden maken met het onderzoeken van een taalkwestie. Vanuit deze opdracht zouden leerlingen kunnen beslissen om verder te gaan in een convergente richting, te weten met het stadium *vatten* op pre-reflectief niveau (P-BU), of in divergente richting, te weten met het stadium *voelen* op quasi-reflectief niveau (Q-IG). De startopdracht zou al enige cognitieve frictie moeten veroorzaken om leerlingen te dwingen na te denken over deze vervolgkeuze. Ten tweede werden de ontwerpcriteria voor alle vakjes uit de matrix vastgelegd, waarbij de belangrijkste waren verschillende bronnen in de opdrachten geraadpleegd moesten worden, dat de opdrachten zonder instructie vooraf uitvoerbaar zouden zijn en geschikt moesten zijn voor groepswerk van drie leerlingen. De docenten kozen als onderwerp voor de opdrachten combinaties die vaak samen voorkomen en bestaan uit een adjectief en een nomen, zoals 'groenekool' naast 'groene asperges'. Voor de eerste opdracht construeerden de docenten twee menu's waarin in het ene menu alle woorden los werden geschreven en in het andere menu alle woorden aan elkaar. De vraag die de leerlingen voorgelegd kregen was: *Als de chef net zo kookt als hij spelt, bij wie is het eten dan het beste?*

In de eerste cyclus werkten zeven groepen aan de opdrachten. Na de eerste opdracht kozen drie groepen door te gaan in convergente richting, nl. met het *vatten* op pre-reflectief niveau (P-BU). Vier groepen gingen door in divergente richting, nl. met het *voelen* op quasi-reflectief niveau (Q-IG).

Tijdens de evaluatie van deze cyclus lazen de docenten de *chats* van de leerlingen. De docenten bleken vooral geïnteresseerd in de cognitieve performance van leerlingen. Zij merkten op dat de leerlingen worstelden met de opdrachten en dat de leerlingen al in de eerste opdracht onzeker waren over de juiste spelling van de woorden. De docenten vroegen zich af of de leerlingen wel genoeg kennis in huis hadden voor deze opdracht. Volgens de docenten vroeg deze les om meer controle door de docent. Ook vonden zij de onderbouwing van leerlingen voor de keuze van een vervolgopdracht niet goed. De docenten besloten de les op vier punten te herzien. De menu's werden

zo aangepast dat het ene menu correct en het andere incorrect gespeld was, zodat beter zichtbaar werd of leerlingen de spellingsregels kenden of niet. Er werden antwoordkaders toegevoegd zodat de docent gemakkelijker de antwoorden zou kunnen controleren. De vrije keuze na opdracht 1 werd veranderd in een verplichte route: leerlingen die het incorrect gespelde menu gekozen hadden moesten door met *vatten* op pre-reflectief niveau (P-BU) om de spellingsregels te ontdekken. Leerlingen die het correct gespelde menu gekozen hadden, moesten door met *voelen* op quasi-reflectief niveau (Q-IG). Aan het einde van de les werd aan leerlingen gevraagd op te schrijven in de chat wat ze van de les geleerd hadden.

In de evaluatie van de tweede cyclus bemerkten de docenten dat de doorgevoerde herziening niet werkte. Waar in de eerste cyclus de startopdracht (P-IG) inspeelde op de onzekerheden van de leerlingen, was in tweede cyclus de twijfel verdwenen omdat de opdracht een keuze tussen goed en fout gespelde woorden betrof. Deze taak wisten de meeste leerlingen feilloos uit te voeren waardoor de meeste groepen verder mochten in een divergente richting met *voelen* op quasi-reflectief niveau (Q-IG). Na deze opdracht gingen bijna alle leerlingen verder in convergente richting met de opdracht *vatten* op quasi-reflectief niveau (Q-BU). Ondanks dat de docenten bleven twijfelen of de leerlingen nu daadwerkelijk de spellingsregels kenden of niet, besloten zij de opdracht nogmaals te herzien zodat deze weer zou inspelen op de onzekerheden van leerlingen. Op de ene menukaart werden alle ingrediënten weer als twee woorden geschreven, op de andere menukaart als samenstelling. Dit resulteerde in twee menukaarten waarvan de ene net even iets meer 'fouten' bevatte dan de ander. De controle op de kennis van de leerlingen was ook nu in de evaluatie een punt van discussie. Een van de oplossingen die geopperd werd, was om door middel van een *multiplechoicetest* leerlingen naar een nieuwe opdracht te geleiden. In de herziening is uiteindelijk hiervoor niet gekozen, maar zijn de vragen aangescherpt voor de keuze van een nieuwe opdracht, zodat de keuze voor een volgende opdracht ingegeven werd door nieuwsgierigheid in plaats van door aanwezige kennis. Vragen die de leerlingen moesten verleiden te kiezen voor een convergente route, begonnen steeds met de woorden 'Ja, dus' zoals ook in het oorspronkelijke ontwerp (deelstudie 3) was geformuleerd, maar niet zo strikt was nagevolgd in de eerste en tweede cyclus. Vragen die leerlingen moesten verleiden te kiezen voor een divergente route, begonnen steeds met de woorden 'Oké, maar'. De andere herzieningen die in de evaluatie van de eerste cyclus waren voorgesteld, werkten volgens de docenten wel. De evaluatie van de les uit de tweede cyclus, die langer duurde dan de les uit de eerste cyclus, resulteerde ook nog in een aantal andere herzieningen, zoals het aanscherpen van de opdracht *voelen* op quasi-reflectief niveau (Q-IG) om meer discussie bij de leerlingen uit te lokken. Ook werd ervoor gekozen bij aanvang van de les te benadrukken dat het

niet ging om zoveel mogelijk opdrachten foutloos te maken, maar dat het zou gaan om het denken van de leerlingen.

In lessen daarna bleek dat de herzieningen van de tweede cyclus resulteerden in meer discussie tijdens de uitvoering van de opdracht *voelen* op pre-reflectief niveau (P-IG). Ook bleken negen van de twaalf groepen in deze beide lessen te kiezen voor een convergente route naar de opdracht *vatten* op pre-reflectief niveau (P-BU) en drie groepen voor een divergente route naar de opdracht *voelen* op quasi-reflectief niveau (Q-IG). De leerlingen onderbouwden hun keuzes voor de volgende opdracht veelal uit (on)zekerheid of comfort, minder uit verwondering, wat een keuze zou zijn die meer in lijn zou zijn met reflectief denken. Ook zagen we dat leerlingen in de uitvoering van de opdrachten uit deze laatste herziening meer taalkundige terminologie gebruikten dan in de opdrachten uit de tweede cyclus. Op de vraag hoe de leerlingen de les hadden ervaren, kwamen zowel positieve als negatieve antwoorden. Leerlingen die een convergerende route (*voelen-vatten-verwerken*) hadden gekozen, waren zowel positief als negatief in hun oordeel. Leerlingen die een divergerende route hadden gekozen (*pre-reflectief-quasi-reflectief-reflectief*), waren eerder positief dan negatief. Er waren ook leerlingen die de opdrachten als moeilijk hadden ervaren (37%). De vraag wat de leerlingen geleerd hadden van deze les, is geanalyseerd op het gebruik van taalkundige terminologie als op het refereren aan taalkundige bronnen. Uit die analyse kwam naar voren dat van de 23 antwoorden tien keer geen referenties naar terminologie of bronnen gebruikt werden, in negen antwoorden wel terminologie gebruikt werd en in vier antwoorden aan bronnen, te weten hun eigen taalgevoel, gerefereerd werd. Uit deze evaluatie van de laatste herziening blijkt dat de opdrachten nu wel onzekerheid en ongemak veroorzaakten, wat nodig is voor de ontwikkeling van reflectief denken.

In deze studie komt naar voren dat docenten naast een grote behoefte aan controle voornamelijk aandacht en zorg hebben voor de cognitieve uitvoering van hun leerlingen. Deze focus op cognitieve performance lijkt bij de docenten de perceptie van het concept *reflectief denken* te beïnvloeden. Docenten leken onder *reflectief denken* elke vorm van nadenken te verstaan, inclusief het toepassen van bestaande regels zonder die ter discussie te stellen. De bedoeling was echter dat het *reflectieve denken* daadwerkelijk de epistemische opvattingen over taal zou moeten betreffen. Dat zou inhouden dat ook regels en zekerheden ter discussie konden worden gesteld.

Deze studie toont aan dat als docenten leerlingen willen leren reflectief te denken over taal, het van belang is een balans te vinden tussen de onzekerheid van leerlingen en de controle waaraan docenten behoefte hebben. Leerlingen moeten leren hoe te

redeneren over ‘rommelige’ taalkwesties. Docenten moeten leren om leerlingen hierin iets vrijer te laten. Een docent of het lesmateriaal kan ondersteuning bieden door relevante begrippen uit te leggen, maar zal de leerlingen ook zelf moeten laten worstelen met hun onzekerheden. De matrix lijkt een bruikbaar instrument te zijn voor de ontwikkeling van deze manier van denken over taal.

Didactische ondersteuning om het reflectief denken van leerlingen te stimuleren wanneer ze geconfronteerd worden met tegenstrijdige bronnen over een taalkwestie

Deelstudie 5a: Onderzoek naar de wijze waarop leerlingen authentieke taalkundige bronnen raadplegen

Waar deelstudie 4 het begin van een reflectieve ontwikkeling bij leerlingen liet zien wanneer zij werkten aan opdrachten uit de matrix, ging deze studie niet in op *hoe* leerlingen taalkundige bronnen raadpleegden en welke didactische ondersteuning zij hierbij nodig hebben. Dit is onderzocht in twee deelstudies die in hoofdstuk 6 beschreven zijn.

In een eerste verkennende studie is onderzocht hoe leerlingen reageerden op bestaande taalkundige bronnen. In deze verkennende studie zijn fragmenten geanalyseerd van de studie uit hoofdstuk 5 en uit aanvullende data die volgens dezelfde methode verzameld waren. Er zijn fragmenten geselecteerd waarin leerlingen (N = 41, gemiddelde leeftijd 16,2 jaar) bestaande, authentieke, taalkundige bronnen geraadpleegd hebben. De leerlingen hebben als primaire bron het krantencorpus Delpher geraadpleegd om de taalwerkelijkheid te onderzoeken. Daarnaast hebben leerlingen secundaire bronnen geraadpleegd, zoals woordenlijst.org, de taaladviesdienst van Onze Taal, de E-ANS en een tekst van Spatiegebruik.nl.

De fragmenten waarin deze leerlingen een of meerdere bronnen raadplegen, zijn kwalitatief geanalyseerd. Uit deze analyse bleken drie overkoepelende redeneertypen naar voren te komen. Het eerste type dat 12 keer voorkwam, hebben we ‘gezaghebbend redeneren’ genoemd. Daarin vatten de leerlingen de bron op als prescriptief (voorschrijvend). Het tweede type, dat 46 aangetroffen werd, hebben we ‘convergent redeneren’ genoemd. Bij dit type redeneren zochten leerlingen voornamelijk naar een verklaring of naar een bevestiging van wat ze al eerder gevonden hadden. Het derde type betrof ‘divergent redeneren’, dat we 23 keer aangetroffen hebben. Bij dit type observeerden leerlingen dat er meerdere varianten mogelijk waren.

In deze studie kwam ook een duidelijk verschil naar voren tussen hoe leerlingen redeneerden met primaire en met secundaire bronnen. Bij het raadplegen van primaire bronnen, wat gedaan werd door 16 leerlingengroepen, kwam 34 keer het convergente redeneren voor en slechts zeven keer het divergente redeneren. Als leerlingen toch ook een start maakten met divergent redeneren, stopte dit direct en convergeerden zij naar een correcte oplossing door bijvoorbeeld de meest frequente variant als de juiste aan te wijzen. Bij het raadplegen van secundaire bronnen door 14 groepen werden de drie typen redeneerstijlen even vaak gebruikt. Het gezaghebbende redeneren kwam 12 keer voor wanneer leerlingen in de bron de taalnorm zochten en vonden. Het convergente redeneren kwam 13 keer voor wanneer leerlingen in de bron bevestiging vonden van een regel die ze in de opdracht ervoor geformuleerd hadden. Het divergente redeneren kwam 14 keer voor in chats waarin leerlingen in de secundaire bronnen meerdere varianten vonden die ook geaccepteerd worden, wat tot verwarring leidde en waarvoor leerlingen vaak een convergente oplossing formuleerden.

Uit deze studie kon de conclusie getrokken worden dat het raadplegen van bestaande, authentieke, bronnen vooral pre-reflectief en convergent denken uitlokte. Leerlingen zijn op zoek naar het enige juiste antwoord. Het divergente denken dat vooral gezien werd bij het raadplegen van secundaire bronnen kan gezien worden als een eerste aanzet tot quasi-reflectief denken. Leerlingen erkennen dat er een taalprobleem is, nl. dat meerdere varianten mogelijk zijn, maar ze kunnen niet de verschillende perspectieven evalueren. Dat het raadplegen van authentieke bronnen niet leidde tot meer reflectief denken, komt omdat authentieke bronnen niet expliciet een conflict weergeven tussen verschillende varianten, maar eerder naast een strikte regel ook aangeven dat er soepel omgegaan mag worden met andere varianten. Dit geeft leerlingen de ruimte om te kiezen voor de veilige strikte variant, die immers op school onderwezen wordt. Zij voelen niet de noodzaak om te redeneren over eventuele spanningen tussen de taalnorm en de taalwerkelijkheid. Dus in plaats van meer reflectief te gaan denken, keren deze leerlingen terug tot het pre-reflectieve denken.

Deelstudie 5b: Ondersteuning om het reflectieve denken van leerlingen te ontwikkelen wanneer zij taalkundige bronnen raadplegen.

In een tweede studie is onderzocht welke didactische ondersteuning (*scaffolding*) nodig is om het reflectief denken van leerlingen wel te stimuleren wanneer zij taalkundige bronnen raadplegen. Op basis van deelstudie 5a is besloten om leerlingen bronnen voor te leggen die elkaar explicieter tegenspreken. In de ene bron wordt een taalvariant goedgekeurd en een andere afgekeurd, in de andere bron is dit juist andersom. De verwachting was dat dit leerlingen zou aanzetten tot meer reflectief denken dan bij bestaande, authentieke bronnen, maar ook dat leerlingen hierbij ondersteuning nodig zouden hebben. Uit literatuur blijkt immers dat leerlingen moeite hebben om conflicterende informatie met elkaar in verband te brengen. Ook blijken leerlingen moeite te hebben overzicht te houden over de informatie die zij in teksten lezen. Om leerlingen hierbij te ondersteunen hebben Barzilai en Ka'adan (2017) in hun onderzoek leerlingen strategisch ondersteund (*strategic scaffolding*) door ze met behulp van een groot invulschema informatie uit verschillende bronnen in kaart te laten brengen zodat leerlingen beter in staat zouden zijn de overeenkomsten en verschillen tussen de bronnen te onderzoeken. Een tweede vorm van ondersteuning die Barzilai en Ka'adan hebben toegepast, was een les waarin zij expliciet aandacht besteed hebben aan waarom, hoe en wanneer je tegenstrijdige informatie moet integreren. Dit noemden zij een *meta-strategische* les. Volgens Barzilai en Ka'adan zou zo'n expliciete ondersteuning van hoe om te gaan met tegenstrijdige informatie de ontwikkeling van hun reflectieve denkvaardigheden kunnen stimuleren.

Geïnspireerd door een onderzoek van Barzilai en Ka'adan (2017), hebben we een interventie ontwikkeld van drie lessen waarin 113 leerlingen (60 jongens, gemiddelde leeftijd 16,2 jaar) uit 5 vwo in drie condities gewerkt hebben aan opdrachten met conflicterende taalkundige bronnen. Omdat dit soort bronnen niet bestaat, hebben we voor dit onderzoek deze zelf geconstrueerd al dan niet op basis van bestaande bronnen.

We hebben in elke klas leerlingen willekeurig verdeeld over drie condities: een *no-scaffolding*, een *strategische* en een *meta-strategische* conditie. In de *no-scaffolding* conditie kregen de leerlingen geen extra ondersteuning bij de uitvoering van de opdrachten. In de *strategische* en *meta-strategische scaffolding* conditie kregen leerlingen ondersteuning in het visualiseren van de informatie uit de bronnen. In de *meta-strategische scaffolding* conditie kregen leerlingen daarbovenop een aparte les over hoe om te gaan met conflicterende informatie in het algemeen en bij taalkundige kwesties in het bijzonder. Per klas waren de leerlingen willekeurig verdeeld over de drie condities.

Alle leerlingen kregen in les 1 en 3 een taalprobleem voorgelegd, te weten ‘de trui past mij’ naast ‘ik pas de trui’ in les 1 en ‘de tarieven wijzigen’ of ‘ik wijzig de tarieven’ in les 3. Leerlingen in de *no-scaffolding conditie* scoorden eerst hoe grammaticaal zij de varianten vonden. Daarna lazen zij de bronnen en moesten zij over de taalkwestie een advies schrijven voor de schoolkrant. Leerlingen in de *strategische scaffolding conditie* en *meta-strategische scaffolding conditie* werkten aan dezelfde taalkwesties als leerlingen uit de *no-scaffolding conditie*. Alleen kregen deze leerlingen een invulschema op A3-formaat om belangrijke informatie uit de teksten overzichtelijk op te schrijven en de betrouwbaarheid van de teksten te beoordelen. Ook konden ze aangeven hoe de teksten zich tot elkaar verhielden. De leerlingen in de *no-scaffolding conditie* en de *strategische scaffolding conditie* kregen in les 2 een leesvaardigheidsoopdracht. De leerlingen in *meta-strategische scaffolding conditie* kregen daarentegen in les 2 een les waarin zij ervoeren door middel van een rollenspel in een rechtszaak dat het belangrijk is om de tegenstelling te duiden, te weten welke **o**pponenten er zijn, met welk **g**eschil je te maken hebt en om **a**rgumenten vanuit verschillende perspectieven te verzamelen (afgekort TOGA). Eerst speelden de leerlingen de advocaten van de opponenten. Daarna kregen ze als rechter de opdracht om op basis van de verzamelde argumenten een onderbouwd oordeel te vellen. Vervolgens werd in een klassikaal gesprek de vergelijking gemaakt tussen de verschillende partijen in een rechtszaak en de verschillende perspectieven om een taalkwestie te onderzoeken. Na afloop van deze TOGA-les vulden de leerlingen een exit-ticket in dat zij als ‘spiekbriefje’ mochten gebruiken in les 3.

De verwachting was dat vergeleken met de leerlingen uit de *no-scaffolding conditie* leerlingen in de *strategische scaffolding conditie* minder aan de taalnorm zouden refereren, meer zouden redeneren vanuit taalgevoel en taalwerkelijkheid en meer taalkundige argumenten zouden gebruiken wanneer zij over een taalkwestie hun mening zouden geven. De verwachting was dat leerlingen in *meta-strategische scaffolding conditie* dit nog sterker zouden doen dan leerlingen uit de *strategische scaffolding conditie*.

Voorafgaand aan de interventie, direct erna en drie weken daarna vulden alle leerlingen een test in over een andere taalkwestie (‘zich beseffen’, ‘zich irriteren’, ‘zich herinneren’). In deze test kregen leerlingen twee bronnen te lezen die elkaar tegenspraken. Van die bronnen gaven ze vervolgens aan op een 5-puntschaal hoe sterk zij de argumentatie vonden en hoe betrouwbaar zij de tekst vonden. Daarna schreven ze een stukje voor de schoolkrant over deze taalkwestie. Uit kwalitatieve analyse van dit schoolkrantstukje werden de verwachte soorten redeneringen zichtbaar. Er waren leerlingen die een beroep deden op de taalnorm of verwezen naar de schrijver van de bron. Andere leerlingen refereerden aan hun eigen taalgevoel

of aan de taalwerkelijkheid. Ook waren er leerlingen die taalkundige argumenten gebruikten om hun mening te onderbouwen, zoals taalvariatie, taalverandering, het taalsysteem, context en betekenis.

In een statistische analyse zijn de prestaties van de leerlingen in de test voorafgaand aan de interventie vergeleken met de prestaties van de test na drie weken. Uit deze analyse bleek dat leerlingen uit conditie *strategische scaffolding conditie* en *meta-strategische scaffolding conditie*, die gebruik gemaakt hadden van het invulschema, in het schoolkrantstukje meer taalkundige argumentatie gebruikt hadden dan leerlingen uit de *no-scaffolding conditie* die dit schema niet gebruikt hadden. Vergeleken met de leerlingen uit *strategische scaffolding conditie* bleken de leerlingen uit *meta-strategische scaffolding conditie*, die de TOGA-les gevolgd hadden, minder beroep deden op de taalnorm of de schrijver van de bron.

Dat leerlingen meer taalkundige argumenten in hun advies gebruikten, kan erop duiden dat zij beter kunnen redeneren over taal, wat weer een grotere mate van reflectief denken zou kunnen betekenen dan bij leerlingen die geen taalkundige argumenten gebruikten. Dat de leerlingen uit de *meta-strategische scaffolding conditie* minder beroep doen op een autoriteit kan komen door de TOGA-les, wat een aanwijzing zou kunnen zijn voor een ontwikkeling in hun reflectief denken. In die les hebben de leerlingen namelijk ervaren dat experts verschillend over zaken kunnen denken en dat ook zij zelf claims kunnen evalueren. Door het klassengesprek waarin het rollenspel vergeleken is met hoe experts denken over taal kunnen leerlingen tot het besef zijn gekomen dat dit dus ook voor taalkwesties het geval is. Dit besef zou een positief effect gehad kunnen hebben op hun reflectieve denken over taal. De tweede studie laat dus dat het gebruik van een invulschema het reflectief denken over taal in gang kan zetten en dat een expliciete les over hoe om te gaan met conflicterende informatie, deze ontwikkeling kan versterken.

Uit beide studies kan geconcludeerd worden dat het werken met taalkundige bronnen reflectief denken over taal in gang kan zetten, maar wel onder bepaalde voorwaarden. Het aanbieden van bestaande, authentieke bronnen ontlokt bij leerlingen die niet vertrouwd zijn om met bronnen te redeneren over taal, nauwelijks of geen reflectief denken. Dit komt omdat in deze bronnen vaak de veilige optie van de taalnorm aanwezig is en het voor leerlingen geen noodzaak is om te redeneren over welke vorm beter is dan de andere. Wanneer leerlingen geconfronteerd worden met bronnen waarin deze veilige optie niet aanwezig is omdat de ene bron variant A goedkeurt en B afkeurt en de andere bron variant A afkeurt en B goedkeurt, zien we het begin van reflectief denken ontstaan. Alleen hebben leerlingen hierbij wel ondersteuning

nodig in de vorm van het in kaart brengen van de informatie uit de bronnen in combinatie met het bewust worden dat bij tegenstrijdige informatie je zelf ook de rol van autoriteit mag oppakken.

Conclusie

In het onderzoek van deze dissertatie wilde ik inzicht krijgen hoe het gebruik van taalkundige bronnen in grammaticaonderwijs in klas 5 vwo of het 5^e leerjaar aso zou bijdragen aan de ontwikkeling van reflectief denken over taal. Door dit onderzoek heb ik een scherper beeld gekregen van de belangrijkste concepten, te weten conflicterende taalkundige bronnen, ondersteuning van leerlingen, de rol van de leraar en reflectief denken over grammatica.

Conflicterende taalkundige bronnen

Omdat leerlingen bij het raadplegen van authentieke bronnen kiezen voor de veilige optie van de taalnorm, is het van belang leerlingen bronnen aan te bieden die elkaar overduidelijk tegenspreken. Het tegenover elkaar plaatsen van standpunten over een kwestie maakt het voor leerlingen onmogelijk om te kiezen voor een veilige optie, de vorm of analyse die altijd goedgekeurd wordt. Leerlingen worden op die manier gedwongen de argumenten voor de standpunten te evalueren. Echter, het aanbieden van louter conflicterende bronnen blijkt ook niet voldoende te zijn om het reflectief denken in gang te zetten (zoals bleek uit de *no-scaffolding conditie* in de laatste studie). Het huidige grammaticaonderwijs heeft leerlingen niet geleerd dat taalkwesties vanuit verschillende perspectieven te onderzoeken en te verklaren zijn. Leerlingen zijn daardoor sterk geneigd over taalkwesties niet te divergeren en meerdere optie te onderzoeken, maar vooral te convergeren naar een juiste oplossing.

Ondersteuning van leerlingen

Opdrachten waarbij leerlingen over taalkwesties redeneren vanuit de perspectieven taalgevoel, taalwerkelijkheid en taalnorm met behulp van taalkundige bronnen, veroorzaken onzekerheid en ongemak. Die onzekerheid en dat ongemak is echter juist nodig voor een ontwikkeling in het reflectief denken. Toch bleek dat zulke opdrachten niet het gewenste divergerende denken over taal in gang zetten. Door dit onderzoek ben ik tot het inzicht gekomen dat het niet voldoende is om leerlingen opdrachten aan te reiken die divergent denken en redeneren vanuit meerdere perspectieven mogelijk maken. Leerlingen moeten ondersteund worden met het in kaart brengen van de informatie in en over de bronnen. Bij een dergelijke ondersteuning gebruiken zij eerder taalkundige argumentatie in hun redeneren over een taalkwestie dan wanneer die ondersteuning achterwege bleef. Als leerlingen daarbovenop ook nog een expliciete les krijgen over hoe je kunt omgaan met conflicterende informatie

en zij daarin ervaren dat zij zelf de rol van autoriteit mogen oppakken, zijn ze ook minder geneigd om te redeneren vanuit de taalnorm of andere autoriteit. Dit laatste is nodig om leerlingen te leren argumenten vanuit verschillende perspectieven evenwaardig te evalueren.

De rol van de leraar

De rol van de leraar is cruciaal in de ontwikkeling van reflectief denken door leerlingen. Uit dit onderzoek blijkt dat leraren openstaan voor meer reflectief denken in de klas. Ik heb ook twee valkuilen ontdekt. In de eerste deelstudie werd zichtbaar dat de kennis van leraren om dit denken te implementeren in de klas laag is. Deze kennisverlegenheid kan tot gevolg hebben dat het divergente denken vermeden wordt in de klas. In de vierde deelstudie kwam vervolgens ook naar voren dat leraren meer gericht zijn op het cognitieve functioneren door leerlingen dan op het reflectief denken, wat belemmerend kan zijn voor de ontwikkeling van dit reflectief denken van de leerlingen.

Reflectief denken over taal

Net zoals in andere disciplines blijkt ook uit deze studie dat de ontwikkeling van het reflectief denken veel tijd kost. Bij grammaticaonderwijs lijkt dit nog sterker het geval te zijn door de sterke focus op het juiste antwoord.

Het onderzoek in deze dissertatie ben ik gestart vanuit de gedachte dat leerlingen door het onderzoeken van taal vanuit hun taalgevoel, de taalwerkelijkheid en de taalnorm hun reflectieve denken over taal zouden ontwikkelen. Ik heb gezien dat leerlingen moeizaam redeneerden over taal evenals het afwegen van argumenten uit verschillende perspectieven. Leerlingen bleven hangen in het perspectief van de taalnorm, waardoor zij eerder convergent denken lieten zien dan divergent denken. In de laatste studie van deze dissertatie kwam ik tot het inzicht dat reflectief denken sterk gerelateerd is aan het denken over taal waarbij de autoriteit niet de boventoon voert en waarbij taalkundige argumentatie gebruikt moet worden. Wanneer leerlingen hiertoe in staat zijn, kunnen zij tot het besef komen dat de kennis over taal niet vaststaat, maar geconstrueerd en beargumenteerd wordt, en dat zij zelf hierin de rol van autoriteit kunnen aannemen. Het gebruik van taalkundige argumentatie bij het redeneren over taal helpt hen bij die onderbouwing en zal de kwaliteit van hun redenering over taal verbeteren.

Het gaat er bij reflectief denken over taal om meerdere argumenten te verzamelen door de taal vanuit de perspectieven taalgevoel, taalwerkelijkheid en taalnorm te onderzoeken. Anders gezegd: het gaat om divergent denken over taal. Wanneer

de argumenten verzameld zijn vanuit deze perspectieven, kunnen leerlingen de verschillende argumenten evalueren om zo tot een oordeel te komen. Dus na divergent denken komt een convergente afweging waar niet één juist antwoord gegeven wordt, maar waar een contextafhankelijke afweging gemaakt wordt op basis van verschillende perspectieven. Het is dus in dit proces van belang de taalnorm niet te presenteren als het belangrijkste perspectief en ook docenten moeten ervoor waken in dit denkproces zich niet op te stellen als de autoriteit of te sterk controlerend te zijn. Hun rol moet gericht zijn op het ondersteunen van leerlingen in het aanpakken van de taak.

Ik kan dus concluderen dat de onderzoeken in deze dissertatie laten zien dat het gebruik van conflicterende taalkundige bronnen onzekerheid veroorzaakt bij leerlingen omdat het de leerlingen dwingt tot divergent denken. In het proces van reflectief denken is het visualiseren van taalkundige argumenten een belangrijk hulpmiddel voor het ondersteunen van het redeneerproces van leerlingen en is het begrijpen van hoe om te gaan met conflicterende informatie belangrijk voor de ontwikkeling van de epistemische opvattingen van leerlingen. Hoe leerlingen zich hierin ontwikkelen is te zien in het oordeel dat zij geven over een taalkundige kwestie. Wanneer leerlingen hun oordeel met meer taalkundige argumenten onderbouwen en autoriteiten zoals de taalnorm of de invloed van andere gezaghebbende actoren reduceren, ontwikkelen zij zich in de richting van het denken over taal zoals experts dit doen, en zoals het ook voorgesteld wordt in de huidige onderwijsvernieuwingen.

Dankwoord

Het was op vrijdag 29 november 2013 dat ik voor de lunch in de rij stond tijdens de Conferentie Het Schoolvak Nederlands naast Peter-Arno Coppen. Hij had zojuist een zeer boeiende lezing gegeven met de intrigerende titel ‘Tegen het leed dat grammatica heet’. Daarin had hij verteld hoe de Algemene Nederlandse Spraakkunst (ANS) nog nooit de weg naar het onderwijs had gevonden, terwijl deze grammatica toch boordevol stond met allerlei voorbeelden waarmee je met leerlingen uitvoerig de taal zou kunnen onderzoeken. Zijn lezing had hij beëindigd met het noemen van een promotieonderzoek dat in voorbereiding was om de ANS van een didactische laag te voorzien. In de lange rij voor de broodjes raakten Peter-Arno en ik in gesprek over zijn lezing en het genoemde onderzoek en liet ik mij min of meer gedachteloos ontvallen ‘Nou, als ik ooit nog ergens op zou willen promoveren, dan zou ik dit een leuk project vinden’. Hierop antwoordde Peter-Arno: ‘Wanneer wil je beginnen?’. Met deze woorden startte een mooi traject waarvan deze dissertatie het resultaat is.

Een betere promotor dan Peter-Arno Coppen bestaat er volgens mij niet. Ik heb het een voorrecht gevonden om zijn promovendus te mogen zijn. Peter-Arno heeft mij vrij gelaten om mijn eigen ideeën te vormen over mijn onderzoek. Hij was altijd geïnteresseerd in wat ik gelezen had, mijn data, in mijn vondsten, hoe een interventie op een school verlopen was, maar ook in mijn twijfels. In plaats van mij voor te schrijven hoe het volgens hem zat, hielp hij mij om te komen tot een weloverwogen analyse. Naast dit alles is hij ook een groot leermeester in hoe je dit alles op papier zet. Peter-Arno heeft mij geleerd met minder woorden meer te zeggen. De zin ‘welk punt wil je maken’ keerde regelmatig terug in onze gesprekken. Na een bespreking was mijn tekst met een kwart gekrompen, maar was ‘mijn punt’ krachtiger en helderder. Ook ben ik Peter-Arno dankbaar voor zijn steun in zaken die niets te doen hadden met mijn onderzoek. Onze gesprekken over werk en privéomstandigheden heb ik als zeer waardevol ervaren. De online lunchvergaderingen op de vrijdag zorgden ervoor dat ik mij weer kon richten op zaken waar ik energie van kreeg.

In 2021 kwam Gerhard Stoel bij de Radboud Docenten Academie werken. Volgens Peter-Arno zou hij een goede copromotor zijn en Gerhard toonde ook interesse. Dat bleek ook zeker waar te zijn. Ook al was hij de eerste afspraak met Peter-Arno en mij volledig vergeten, Gerhard heeft van begin af aan met een tomeloze energie zich verdiept in mijn onderzoek. Hij wist altijd feilloos zijn vinger te leggen op zaken waar ik niet goed uitkwam. Samen kwamen we tot oplossingen waarvan we ons dan afvroegen wat Peter-Arno daarvan zou vinden. Vooral het eerste inhoudelijke gesprek dat wij in 2021 online gevoerd hebben, waarin Gerhard mij bijna drie uur lang mij

bevraagd heeft over mijn onderzoek, heeft mij heel veel zelfvertrouwen gegeven dat ik op de goede weg was. Wat ben ik blij dat hij mijn copromotor wilde zijn. De chemie tussen ons drieën heeft het onderzoek zeker goed gedaan!

In het hele onderzoekstraject is Jimmy van Rijt steeds een belangrijke sparring partner voor mij geweest. Het was dan ook niet meer dan logisch om hem te vragen als paranimf. Bij Jimmy's promotie heb ik al laten weten dat ik enorm jaloers ben op zijn enorme kennis van de taalkunde, van de taalkundendidactiek en van de statistiek. Jimmy's promotietraject verliep als een speer. Terwijl ik nog zoekende was in mijn project, publiceerde hij het ene na het andere artikel. Regelmatig kwam er weer een appje voorbij met de tekst 'Hoppa' en dan wist ik dat de foto een screenshot was van een geaccepteerd artikel. Toen ik eindelijk toe was aan het insturen van mijn eerste artikel, kon hij mij wegwijs maken in de voor mij onbegrijpelijke submit-catacomben van een of ander journal. Tijdens alle congressen hebben we ons niet alleen heel serieus met de inhoud beziggehouden, maar we hebben ook ontzettend veel plezier gehad. We hebben elkaar de afgelopen jaren ook goed leren kennen. Zo weet Jimmy inmiddels dat ik altijd naar van alles loop te zoeken – 'Waar is mijn hotelpasje?' en 'Hoe zeg je dat in het Engels?' - en ben ik gewend geraakt aan Jimmy's eetlust, vooral op vliegvelden. Niet alleen in ons vak zijn we gegroeid, we zijn ook beter geworden in het herkennen van waar we vliegen. Waren bij onze eerste vlucht alle eilanden die we uit de lucht zagen Waddeneilanden, tijdens onze laatste vliegreis herkenden we zomaar het Markermeer! Jimmy, bedankt voor alle goede raad en ondersteuning. We zijn vrienden voor het leven geworden.

Een woord van dank gaat ook uit naar NWO voor het honoreren van mijn beursaanvraag in 2017. Hierdoor kon ik mijn onderzoek uitvoeren in de helft van mijn werktijd voor de Hogeschool Utrecht. De HU bedank ik voor de mogelijkheid die ik hiervoor gekregen heb. Mijn collega's Astrid en Janneke ben ik zeer erkentelijk voor hun interesse in mijn onderzoek en hun bereidheid om nieuwe kennis over grammaticadidactiek waarmee ik weer eens kwam aanzetten, in onze taalkundecolleges toe te passen. Ook wil ik de collega's van de HU bibliotheek bedanken voor hun ondersteuning als ik weer eens hopeloos op zoek was naar een onvindbare publicatie. Zeker tijdens de coronaperiode heb ik die ondersteuning als zeer waardevol ervaren.

Ik wil de medewerkers van de Radboud Docenten Academie bedanken voor alle ondersteuning die ik ontvangen heb. Een speciaal woord van dank is voor Robin, die mij ondersteund heeft in de aanvragen voor de Ethische Commissie en het datamanagement. De laatste jaren heb ik mij minder vaak laten zien op de twintigste verdieping, maar als ik er was, voelde ik mij er altijd welkom.

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Ik heb mijn dissertatie opgedragen aan mijn zus Inge. Toen ik in 2015 aan het begin stond van mijn dissertatietraject, kreeg Inge de diagnose kanker. Waar ik steeds meer grip kreeg op mijn onderzoek, verloor zij steeds meer grip op haar leven. De laatste jaren heb ik wekelijks met Inge gewandeld. Elke wandeling vertelde zij mij hoe zij eraan toe was en toonde ze ook altijd interesse in mijn onderzoek. Zij werkte keihard eraan om langer bij ons te blijven, ik werkte keihard om haar ook bij mijn promotie te kunnen laten zijn. Beide is niet gelukt. Toen ik bemerkte dat ze mijn verdediging niet zou redden, heb ik haar verteld dat ik mijn proefschrift aan haar wilde opdragen zodat ze toch bij mijn promotie zou zijn. Dit ontroerde haar. Voor mij is deze opdracht een erbetoon aan de kracht die zij getoond heeft tijdens haar ziekte.

Ook mijn vader en moeder zullen bij de promotieplechtigheid niet aanwezig zijn. Mijn vader zou trots op mij geweest zijn. Hij wilde altijd dat zijn dochters hoog opgeleid zouden zijn zodat zij weerbaar zouden zijn in de maatschappij. Tegen mijn vader zou ik willen zeggen: 'Nou papa, hoger dan dit gaat het 'm echt niet worden!' Mijn moeder is niet meer in staat om bij de plechtigheid aanwezig te zijn, maar ik kan haar nog wel het boek laten zien. Ik zal haar laten zien dat in dit boek de namen van haar beide dochters staan.

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About the author

Astrid Wijnands was born in Amsterdam on April 7th 1965. She grew up in Baarn where she attended primary and secondary education. In 1983 she began studying Dutch language and literature at the Free University Amsterdam (Vrije Universiteit). She graduated in 1987 with a thesis on first language acquisition. Due to her special interest in the phenomenon of language, she decided to study general linguistics as well at the Free University Amsterdam. In 1989 she graduated cum laude with a thesis on early diphthongization of palatalized West Germanic [u:]. From 1989 to 2000 she worked as a researcher and lecturer at the Free University. Her areas of expertise were first language acquisition, developmental language disorders, and psycholinguistics. In 1993 she also decided to work as a teacher of Dutch language and literature at the Johan van Oldenbarnevelt Gymnasium in Amersfoort. From 2001 to 2014, she worked as a freelance author and editor of textbooks for Noordhoff Publishers and collaborated with Marianne Boogaard, Mathilde Jansen, and Petra Poelmans on the publication of a Language Canon (Taalcanon). In 2002 she made the switch from secondary school teacher to teacher educator at the Utrecht University of Applied Sciences (Hogeschool Utrecht), where she still works. She lectures in grammar, language change, critical thinking, and language pedagogy in the bachelor's and master's programmes. In addition, she is an institutional trainer at various secondary schools, where she supervises students during their internships. She started her PhD-research in 2015 and she received a teachers' grant in 2018 for conducting this research alongside her job as a teacher educator. Since 2017 she is a member of the Special Interest Group 'EduLing' (affiliated to ARLE).



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List of publications (selection)

In peer-reviewed journals

Coppen, P.-A., Van Rijt, J., Wijnands, A. & Dielemans, R. (2019). Vakdidactisch onderzoek naar grammaticaonderwijs in Nederland. *Tijdschrift voor Nederlandse Taal en Letterkunde* 135(2), 85-99.

Van Rijt, J., Wijnands, A. & Coppen, P.-A. (2019). Dutch teachers' beliefs on linguistic concepts and reflective judgement in grammar teaching. *L1-Educational Studies in Language and Literature* 19, 1-28. <https://doi.org/10.17239/L1ESLL-2019.19.02.03>

Wijnands, A., van Rijt, J., & Coppen, P.-A. (2021). Learning to think about language step by step: a pedagogical template for the development of cognitive and reflective thinking skills in L1 grammar education. *Language awareness*, 30(4), 317-335. <https://doi.org/10.1080/09658416.2021.1871911>

Wijnands, A., van Rijt, J., & Coppen, P.-A. (2022a). Measuring epistemic beliefs about grammar. *L1 - Educational Studies in Language and Literature*, 22, 1-29. <https://doi.org/10.21248/liesll.2022.22.1.362>

Wijnands, A., van Rijt, J., Stoel, G., & Coppen, P.-A. (2022b). Balancing between uncertainty and control: Teaching reflective thinking about language in the classroom. *Linguistics & Education*, 1-19. <https://doi.org/10.1016/j.linged.2022.101087>

Conference proceedings

Wijnands, A. (2015). Dat zoeken we op! Het gebruik van de ANS bij grammatica. In: Vanhooren, S. & Mottart, A. (red.). *Negenentwintigste conferentie Het Schoolvak Nederlands* (pp. 348-353). Academia Press.

Wijnands, A. (2016). Denken met de Algemene Nederlandse Spraakkunst. Het gebruik van taalkundige bronnen in de taalkundelessen. In: Vanhooren, S. & Mottart, A. (red.). *Dertigste conferentie Het Schoolvak Nederlands* (pp. 244-348). Academia Press.

Verhelst, K., Van Laere, A. & Wijnands, A. (2018). Gedifferentieerd denken over taalkwesties in de vooreindexamenklassen. In: Vanhooren, S. & Mottart, A. (red.). *Tweëndertigste conferentie Het Schoolvak Nederlands* (pp. 228-232). Academia Press.

Wijnands, A. & Echten, K. (2019). Over fijn gesneden groentes en luid zingende bussen. Gedifferentieerd leren nadenken over taalkwesties in vwo-5. In: Vanhooren, S. & Mottart, A. (red.). *Drieëndertigste conferentie Het Schoolvak Nederlands* (pp. 267-271). Academia Press.

Wijnands, A. (2022). Controle over zekerheden? Reflectief leren denken over taalkwesties. In: Vanhooren, S. & Mottart, A. (red.). *Vijfendertigste conferentie Het Schoolvak Nederlands* (pp. 331-335). Academia Press.

Wijnands, A. (2024). Leren redeneren over taalkwesties met linguïstische bronnen in de klas. Welke ‘steiger’ is hiervoor nodig? In: Vanhooren, S. & Mottart, A. (red.). *Zevenendertigste conferentie Het Schoolvak Nederlands* (pp. 348-352). Academia Press.

Other publications

Van Rijt, J. & Wijnands, A. (2017). Taalnorm, taalwerkelijkheid en taalgevoel: de casus ‘hun hebben’. *Levende Talen Magazine* 104(7), pp. 4-8.

Wijnands, A. (2023). Brakke bronnen in de grammaticales. Hoe reageren leerlingen wanneer zij linguïstische bronnen raadplegen? *Neerlandistiek. Online tijdschrift voor taal- en letterkunde*.

Wijnands, A. & Van der Sijs, N. (2023). Hoe maak je leerlingen bewust van hedendaagse en historische taalveranderingen? In: Dera, J., Van der Loo, J., Gubbels, J. & Van Rijt, J. (red.). *Handboek Didactiek Nederlands*. Coutinho.



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