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ORIGINAL PAPER

# Word choice for writing: the nature and types of children's meta-lexical awareness

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**Abstract**
Children's increasing expertise in composition relies partly on word choice. Little is known about how children consider words as they write, their meta-lexical awareness, or about their choice of words for writing. In this study, we investigate children's meta-lexical awareness, as one aspect of their metalinguistic awareness, which guides their word choices as they write. We describe how child writers express their meta-lexical awareness and how this might relate to writing achievement. We view language as functional in context of use following systemic, functional grammar theorists. We employ a mixed methods approach using writing achievement scores and a modified think aloud protocol to understand what children think about words as they write. Findings show that children develop increasing sophistication in the way they consider and choose words and that this relates to their writing achievement. The nature of children's meta-lexical awareness and its relationship to writing achievement is theorised, adding to the growing body of research into the importance of metalinguistic awareness to children's writing.

**Keywords** Writing · Metalinguistic · Meta-lexical · Words

## 1 Introduction

Intuitively and empirically, children's increasing expertise in composition of writing relies at least in part on word choice. Whilst word choice is apparent in the analysis of children's writing, relatively little is known about the ways that children consider words as they write, or what increasing sophistication in choosing words looks like for children during the act of composing. In the present study, we consider the various approaches that child writers

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take to consider the words they use in writing. Our focus is on describing the nature and types of children's meta-lexical awareness.

Drawing from a systemic functional conceptualisation of linguistics (Halliday, 2014), lexico-grammar can be considered to be a multiplicitous resource for making meaning. Language is conceptualised as a complex, system network of potential choices children make to express meanings. Lexico-grammar, including meta-lexical awareness, is "the powerhouse where meanings are created" (Halliday, 2014, p. 22). Language is stratified and children may attend to particular ranks, compositional layers of language, as they write. This study focuses on words in the compositional hierarchy of writing (Halliday, 2014). Following Derewianka (1998) traditional lexical terminology is linked with functional language theory and where terms are used in Halliday's (Halliday, 2014) sense they are referenced.

Educational researchers sometimes refer to *levels* of language, to describe the aspects of lexico-grammar (Halliday, 2014) which children need to control as they gain increasing expertise in writing (Abbott et al., 2010; Allal, 2000; Clay, 1975). The descriptions of levels are employed in writing research to discover correspondences between children's attention to a level (for example, spelling) and writing success. Here we use a related term, *aspects* (Halliday & Hasan, 1989) when indicating these compositional layers to reflect the understanding that language can be conceived as a complex, system network, rather than a hierarchy (Halliday, 2014).

## 2 The importance of word choice for writing quality

Words are intrinsic to writing quality. Indeed, written language development is often described using lexical measures of children's vocabulary in narratives (Wood et al., 2020). Increasing knowledge of academic vocabulary has been shown to contribute to high-quality writing (Lawrence, White, & Snow, 2010; Lesaux et al., 2010; Myhill, 2009), and children's awareness of academic language develops towards increased vocabulary knowledge and depth of knowledge of words (Lesaux et al., 2010; Townsend & Collins, 2009). Indeed, commonly, the two are intertwined in classroom interventions. Writing persuasive essays was a part of a successful programme to develop academic vocabulary which showed that students in a 20–22-week programme increased their vocabulary knowledge by the same number of words usually learned in 2 years of normal tuition (Lawrence, White & Snow, 2010). Teachers perceived that students' writing greatly improved as a result of an academic vocabulary intervention (Lesaux et al., 2010). Good writing in Myhill's (2009) study was statistically significantly associated with the use of longer words which were often sophisticated words of Greek or Latin origin. It seems that word use is both an indicator of and contributor to writing success.

Writerly attention to words at moments of problem solving during the act of writing has also been identified as essential to the translation of ideas into language inherent in the writing process (Flower & Hayes, 1981). For early writers, selecting the next word in the sequence is necessary when writing sentences, and children must learn to monitor the words they have written (St Clair-Thompson & Gathercole, 2006). This early task of choosing words as the building blocks of a story to express ideas is considered to employ lower-level executive functions (Diamond, 2013) by which young children are thought to self-extend their knowledge of words while learning to write (Boocock et al., 1998).

Along with the importance of attention to words, there is also some evidence that students develop increasingly sophisticated ways of making their selections. Selecting words to express knowledge as it is organised in the mind is indicative of the knowledge telling strategy of novice writers (Bereiter & Scardamalia, 1982). In contrast, attention to the rhetorical effects of words is evidence of a more sophisticated knowledge transforming (Bereiter & Scardamalia, 1982) and knowledge crafting (Kellogg, 2008) strategic approach to composition. Writers employing these more sophisticated strategies transform ideas for a purpose and consider the effect of writing on a reader. In Myhill's (2012) study of metalinguistic development in 32 classes of 12 and 13 year olds, the young writers tried to choose words which created pictures in their readers' minds or were imaginative and interesting. These students suggest that attention to words becomes increasingly sophisticated with writing expertise, reflected in an emerging ability to craft with audience awareness. Moreover, linguistic research into writing and vocabulary development shows that as children grow older, lexical density increases and noun and verb groups expand. Older children use more adverbs of manner and prepositional phrases (Christie & Derewianka, 2008).

## 3 Meta-lexical awareness develops through reading and oral language

Reading and writing are acknowledged as interactively developing skills drawing on and developing shared knowledge of the necessary MLA for success in each skill (Clay, 2019). Clay (2019) argues that writing makes visible the MLA, including word knowledge, also required for reading and that writing is always analytical of that MLA. MLA develops interactively with reading development and the underlying cognitive skill appears to be executive control (Tunmer & Herriman, 1984). Executive control is part of the MLA required for word choice in writing so it seems that MLA developed through reading may contribute to the knowledge and choice of words used in writing. Kim (2020) proposed that reading and writing are inter-related through shared skills and knowledge, including vocabulary, in an "interactive dynamic literacy model" (Kim, 2020, p. 2). The notion that reading and writing abilities are connected and that writing and reading instruction develop children's vocabulary interactively is supported by a study which showed that children with reading difficulties scored lower on measures of writing quality, including vocabulary, than their peers of the same age and younger children with similar reading capability (Graham et al., 2021). In a separate study, teaching reading enabled writing achievement and when students read themselves, or observed others read, writing performance was enhanced (Graham et al., 2018). It seems that reading interventions enhance students' writing performance (Graham et al., 2018). Myhill and colleagues (2012, 2018) showed that interventions that involved analysing the effectiveness of grammatical constructions in published texts enhanced children's MLA and enabled students to use the grammatical items in their own writing. They were then able to engage in metalinguistic talk about the effectiveness of the grammatical constructions. The research suggests that it is likely that children with developed meta-lexical awareness and high writing achievement in the present study might also be good readers but investigating their reading capabilities was beyond the scope of the study.

Oral language contributes to compositional quality in writing (Abbott & Berninger, 1993), and vocabulary is part of both compositional quality and oral language. Oral rehearsal of ideas links with MLA as children bring words into consciousness (Myhill & Jones, 2015). Talk amongst peers in a classroom assisted them to reach communicative

writing goals because they engaged collaboratively "in the joint meaning-making process" (Newman, 2015, p. 96). Discourse level oral language skills mediated the effect of foundational oral language skills, including vocabulary, on writing quality in Grade 1 (Kim & Schatschneider, 2017). Discourse oral language skills, including vocabulary, contributed to written composition quality in developing writers (Kim, 2019). Oral rehearsal of ideas was part of the MLA of the young writers in this study as they stated what they were thinking as they wrote. Some high-achieving writers volubly rehearsed their ideas before starting to write, initiating the process of translating them into words, when prompted to say what they were thinking.

## 4 The role of metalinguistic awareness for writing composition

The act of writing always requires conscious decision making and choices of language (Myhill & Jones, 2015). This conscious ability to think about language as if it were an entity in and of itself and to reflect upon it is termed metalinguistic awareness (Cazden, 1974) and can be a feature of using oral language as well as written language. Metalinguistic awareness has been conceptualised as comprising the intersecting cognitive skills of analysis of one's knowledge of language, and control of cognitive operations over that language (Bialystok, 2001). Analysis can be conceptualised as the knowledge of a linguistic item, whereas control of attention might be conceived as the mental operations including noticing, attending to, and using that item. Analysis of one's knowledge of language might include the concepts of grammar, as well as knowledge of explicit grammatical metalanguage but it might also include intuitive knowledge of implicit language resources (Ellis, 2005; Van Lier, 1998). Control of cognitive operations would include control of attention and strategies for working on text (Bialystok, 2001; Clay, 1991).

Metalinguistic awareness is thought to operate within the differing aspects of language, as authors consider such aspects as audience awareness, or ideas, or organization (Gombert, 1992; Myhill, 2012). Here, the analysis and control of words is the meta-lexical aspect. Gombert (1992) described the types of meta-lexical awareness children expressed when speaking and this notion of meta-lexical awareness has been extended to apply to writing in this study. On Gombert's (1992) account, meta-lexical awareness is included in the category meta-semantic awareness as children understand that words can be manipulated without the signified meaning being affected. (*Signified meaning* refers to the extralinguistic referents of the words).

Within the more general description of metalinguistic awareness, meta-lexical awareness comprises children's awareness of words including their analysis of their word knowledge, and their controlled decision making about words. Features of meta-lexical awareness include the child's ability to understand the word as a concept, and to access the mental lexicon consciously (Gombert, 1992). Analysis with respect to meta-lexical awareness would include children's increasingly explicit representations and descriptions of words. Control of attention is the act of attending to words and deliberately making word choices (Bialystok, 2001; Karmiloff-Smith, 1986). Through meta-lexical awareness, the children employ ideational (representing reality), interpersonal (enacting social relationships) and textual (using words) metafunctions (Halliday, 2014) to interrelate the levels of stratification of language—context, semantics, lexico grammar, phonology and phonetics (Halliday, 2014)—to create texts with functional communicative purposes. Topic choice

(field), relationship between writer and reader (tenor) and construction of the text (mode) (Halliday, 2014) are linked metafunctionally through meta-lexical awareness.

Based on the understanding of language as a complex system network, development in meta-lexical awareness for writing might be conceptualised as children expansively analysing their language knowledge and gaining control of their strategic use of different types of vocabulary to create texts rather than a linear progression of word learning (Haas Dyson, 2009). It seems likely, therefore, that the complexity in the nature and types of children's meta-lexical thinking is related to their writing achievement. However, it is not yet known how children's meta-lexical awareness changes or how meta-lexical awareness varies in writers of differing achievement levels across childhood.

The present study investigates the nature and types of children's meta-lexical awareness, through analysis of children's verbalisations during the act of writing and reflections afterwards. Three research questions guided the study:

1) How do child writers express their consideration of words when writing?
2) What differences can be discerned between child writers in their analysis and control of words for writing?
3) How might meta-lexical awareness relate to writing achievement?

## 5 Methods

A cross-sectional sample of children came from a multi-ethnic urban, primary school in Auckland, New Zealand. The children were in Years 3 to 6 of their schooling, aged 7 to 11 years, and all were volunteers for the study; appropriate ethical approval was obtained including parental consent. Two high-achieving writers and three low-achieving writers were speakers of another first language than English. The school was categorised as decile eight. Deciles, in New Zealand, were measured based on the socioeconomic status of the school's catchment area. Decile one was the lowest socioeconomic group and ten the highest. All schools in New Zealand actively seek engagement from the children's community and extended families. The special character of the research school and the children's stories suggest that one way families support their children is by offering interesting experiences about which to talk and write.

Thirty-one children participated in both an achievement assessment, a verbalisation while writing and an interview for this study. The assessment, e-asTTle: writing (revised) (Ministry of Education, 2012), is a rigorously tested and norm referenced test which requires children to write independently and evaluates their writing according to a rubric. The genre chosen for the two pieces of writing was recount. Recounts are practised often in schools and it was probable that the children would know how to write a recount. The e-asTTle assessment was a longer recount and for the verbalisation while writing, 31 children wrote a paragraph. The topic for both pieces of writing was to recount an experience with family and whanau (extended family). The children were very aware that the audience was the researcher and her colleagues.

The verbalisation observation was conducted as the children wrote a paragraph about the e-asTTle: writing prompt. The children were asked to describe what they were thinking about as they wrote. Immediately, following writing, the children completed an interview. The two opportunities to talk operated as a modified think aloud (Reinhart et al., 2019), since some children are known to find thinking aloud while they write difficult and

sometimes just say the words they are writing (McCutchen, 1988). In the present study, the verbalisations were prompted at regular intervals by the researcher, saying "Tell me what you are thinking" or "Tell me everything you are thinking." When statements were unclear or ambiguous, children were asked to explain a statement. These verbalisations and interviews were analysed together because the interviews explained the verbalisations and because the verbalisation was a type of think aloud interview (Reinhart et al., 2019).

The children's verbalisations and interviews were transcribed and analysed alongside the children's writing samples. The unit of analysis for the verbalisations and interviews was word groups or clauses (Droga & Humphrey, 2003) in which the child mentioned words, or types of words, or making decisions about words. These *mentions* were selected from the data and grouped and categorised inductively. The relationship between writing achievement and the numbers of mentions of meta-lexical awareness by each child was tested through Spearman's Rho correlation. To check consistency, coding of 13% of categorised scripts were parallel blind coded by two of the authors: there was complete agreement in 90% of the mentions of MLA and agreement on the remaining mentions was reached through discussion.

## 6 Findings

Children talked about words in ten different ways, from just mentioning choosing words or thinking about a word, to purposefully selecting or rejecting words as they wrote. The types of meta-lexical awareness the children described are depicted in Table 1.

### 6.1 A concept for a word

In total, 25 of the 31 children spontaneously mentioned thinking about words during the verbalisations, in response to the generic prompts. Whilst they all demonstrated an understanding of the concept word, they talked about their conscious control of words in various ways. All these 26 described, in some way, a conscious search for words. In some cases, the search seemed quite literal, "I am thinking of my words that I am going to write" (Participant 7), whereas other children described a process of translation, thinking word by word what they were saying, "I am thinking of the words that I will use. I am thinking about the next words" (Participant 27).

Greater analysis seemed apparent when children described features of words, and greater control was shown when there was an awareness of decision-making processes. At a very literal level, one child expressed the close match between thought and word, "I put frightened because I felt that that would show them that I was quite terrified" (Participant 18). In contrast, both analysis and control seemed more sophisticated when children verbalised that words created images and that this was a resource for writing, "When people read it, they would get a more clear image of what things would look like" (Participant 29). Similarly, analysis was indicated when ambiguity was identified, for example, one child chose words to avoid the ambiguity of pronouns in his writing. Caden said "I changed it to *whole* family instead of we because it's the *whole* family and we don't know who *we* is" (Participant 26). Deliberately choosing different words rather than replicating terms seemed indicative of control, "I was trying to have different words so I don't repeat the same words again because if it is repetitive it will sound quite weird, I guess... I want to use

**Table 1** Types of meta-lexical awareness children expressed

| Type of meta-lexical awareness | Explanation |
|---|---|
| Described the concept word | The child verbalised a concept for a word. She/he may have just mentioned words |
| Named types of words including using metalanguage | The child used metalanguage to name types of words. The child named and explained figures of speech |
| Choosing more complex vocabulary | The child talked about improving writing by choosing more sophisticated and 'interesting' or 'exciting' vocabulary items |
| Choosing based on precision of expression | The child talked about choosing a word because its meaning was more precise and better represented the writer's intention or image of an object |
| Attending to the emotive force of words | The child talked about using specific words which were emotive to evoke a feeling in the reader<br>The child talked about specific words which expressed the writer's feelings |
| Replacing words for sense | The child talked about deselecting words and replacing them with words which made more sense |
| Creating imagery | The child referred to imagery and words were chosen to build a picture in the reader's mind |
| Avoiding repetition | The child talked about choosing different words so she/he was not repeating words |
| Resolving deixis | The child chose words because they pointed specifically to an aspect of the context |
| Writing word by word | The child talked about running out of words; or whilst writing, thinking of the words she/he will use |

different types of vocabulary" (Participant 25). Table 2 shows the numbers of children in each group who spontaneously talked about the concept for a word, in some form.

### 6.2 Used metalanguage

While almost all children talked about *words*, only 8 out of 31 children spontaneously used any other metalanguage to refer to words. Use of metalanguage was evidence of analysis and the ability to abstract the words conceptually to a system (Chen & Myhill, 2016; Vygotsky, 1986). This was sophisticated perception of words. These children referred to vocabulary, adjectives, generalisers, verbs and descriptive words. One child named figures of speech: he said he could "add more language features like onomatopoieas [sic]... metaphors and verbs" (Participant 26). Table 3 shows the number of children who mentioned metalanguage and the number of mentions in which metalanguage was used.

**Table 2** Numbers of children whose metalinguistic awareness mentions demonstrated an understanding of the concept word

| | Demonstrated a concept word | Did not mention words | Total in group |
|---|---|---|---|
| High achieving | 14 | 2 | 16 |
| Low achieving | 11 | 4 | 15 |
| Total | 25 | 6 | 31 |

**Table 3** Numbers of children who spontaneously mentioned metalanguage to talk about words

| | Used metalanguage (total times mentioned) | Did not use metalanguage | Total in group |
|---|---|---|---|
| High achieving | 6(9) | 10 | 16 |
| Low achieving | 2 (5) | 13 | 15 |
| Total | 8 (14) | 23 | 31 |

### 6.3 Choosing based on awareness of more complex vocabulary

Almost half of the children, 15 out of 31, talked about improving writing by choosing more sophisticated vocabulary items which they referred to as "interesting" and "exciting" (Participant 24). These showed increasingly explicit representations of words (an extension of analysis) and control of attention which extended to making choices (Bialystok, 2001; Karmiloff-Smith, 1986). There was some evidence that the children chose Latinate vocabulary as more sophisticated. One child, for example, replaced "funny" (derived from the USA) with "hilarious" (from the Latin "hilaris") because hilarious sounded more interesting (Participant 3). The word "exhausted" (from the Latin "exhaurire") was chosen instead of "tired" (from the Old English "teorian") (Participant 15).

The mentions of seeking more complex vocabulary numbered 48 out of a total of 133 meta-lexical mentions. High-achieving writers mentioned choosing more complex vocabulary more frequently: 40 out of 48 mentions were from high-achieving writers. One child showed awareness of assessment criteria and differentiated between common usage high-frequency words and "having the vocabulary a bit more up to the next level because that will make your writing that much more better" (Participant 25).

Table 4 shows the numbers of children who sought more complex vocabulary and the number of mentions:

### 6.4 Choosing based on precision of expression

A number of children, 12 out of 31, talked about choosing a word because its meaning was more precise and better represented their intended meaning. They expressed control of attention (Bialystok, 2001), extended to making deliberate choices. The total number of mentions was 22, mostly from the high-achieving group.

The way the children thought about precision did not seem to differ greatly between year levels or achievement groups. Flora in Year 3, for example, changed *put* to *set,* "Because I didn't think put was the right word, I wrote set" (Participant 2) as it better represented the way her mother "set" up the picnic. A Year 5 child was precise about the

**Table 4** Numbers of children who talked about using more complex vocabulary

| | Sought more complex vocabulary (total times mentioned) | Did not seek more complex vocabulary | Total in group |
|---|---|---|---|
| High achieving | 11 (40) | 5 | 16 |
| Low achieving | 4 (8) | 11 | 15 |
| Total | 15 (48) | 16 | 31 |

"rock garden" (Participant 22) ski chair lift he went on. A Year 6 child said, "I changed went to swam because like they swam over to it. They didn't, like, just go" (Participant 24). Table 5 shows the number of children and mentions referring to using precise words:

### 6.5 Choosing based on emotive force

Five children talked about using words to express their own feelings or to evoke an emotional reaction in the reader. Flora, Year 3, commented on her choice of the word *magical*, "Because I thought that the day that we went on a picnic in the weekend was magical" (Participant 2). Sara, Year 5, thought hard about conveying the right amount of fear. She rejected the word *scared*, "but they might think I was just a little scared or very scared or too scared or anything so I put frightened because I felt that that would show them that I was quite terrified" (Participant 18). A Year 5 child differentiated between "wanted" and "tempted" because of the connotations he associated with each word: "tempted is a better word than wanted because wanted sounds selfish but tempted was ooh I really wanted to ride the bike" (Participant 16).

### 6.6 Improving the sense

The children talked about attending to choosing individual words which affected the sense of their writing (rather than attending to the grammar of the sentence). This type of attention occurred across year and achievement levels. There were 12 mentions. Adele in Year 3, for example, disliked the expression "this way and that way... Because it doesn't sound right" (Participant 1). A Year 4 child was particular about putting "and" in "Because it didn't make any sense" (Participant 14). A Year 4 child evaluated her writing and said, "I don't think that word is right" (Participant 9). A Year 6 writer said, "I can put better words in that make more sense than the words I have already got in" (Participant 30). A Year 6 child said she changed "put" because it "sounded better for that sentence" (Participant 24). Table 6 illustrates the number of children who mentioned improving the sense of their writing.

### 6.7 Imagery

Only one child referred to creating imagery with his words: Lance, Year 6, said, "When people read [more descriptive words]... they would get a more clear image of what things would look like" (Participant 29). Two Year 3 children seemed to choose words

**Table 5** Numbers of children who mentioned using precise words

| | Chose a more precise word (total times mentioned) | Did not talk about choosing more precise words | Total in group |
|---|---|---|---|
| High achieving | 7 (16) | 8 | 16 |
| Low achieving | 5 (6) | 10 | 15 |
| Total | 12 (22) | 18 | 31 |

**Table 6** Numbers of children who attended to using words which made better sense

| | Chose a word which affected the sense (total times mentioned) | Did not talk about choosing words which affects sense | Total in group |
|---|---|---|---|
| High achieving | 5(8) | 11 | 16 |
| Low achieving | 3 (4) | 12 | 15 |
| Total | 8 (12) | 23 | 31 |

to create an image but did not articulate their consciousness of choosing words to build a picture in the reader's mind. Adele chose the word *soft* (Participant 1) to create a clearer picture of the rabbit she had seen "Because I like soft things" (Participant 1). She said she tried to choose "more interesting words" (Participant 1). Flora chose the word *magical* (Participant 2) to evoke the ambience of her weekend picnic. Neither specifically mentioned the word 'image'.

### 6.8 Avoiding repetition of words

Three children talked about avoiding repetition of words in their writing. There were seven mentions; five of them were from a single Year 6 child. She was very attentive to avoiding repetition, for example, she said, "or try to use different vocabulary each time you are trying to say the same thing... I was thinking about not having the same vocabulary" (Participant 25).

### 6.9 Word by word writing

Four children referred to writing word by word to express their ideas. Macey, in the Year 3 group said, "I am thinking of my words that I am going to write and then I am thinking of the next word and the next word" (Participant 7) indicating that she was translating her ideas word by word. Another Year 3 child expressed being lost for words, "I don't know what to write because like I ran out of words" (Participant 3), suggesting that he was writing word by word. A Year 4 child learning English as an additional language said he was concentrating on writing "my words in English" (Participant 14). When asked how he would improve his writing he said he would "change the words" (Participant 14). A Year 6 child, for whom English was an additional language also said, "I am thinking of the words that I will use... I am thinking about the next words (I am concentrating on)... The words I am writing" (Participant 27). Table 7 shows the numbers of children who mentioned writing word by word.

### 6.10 The relationship between meta-lexical awareness and writing achievement

The numbers of mentions of words suggested a hypothesis that there might be a relationship between attending to words and writing achievement. In order to test the notion that there was a relationship, Spearman's Rho correlation was carried out between the

**Table 7** Numbers of children who talked about writing word by word

| | Writing word by word (total times mentioned) | Did not talk about writing word by word | Total in group |
|---|---|---|---|
| High achieving | 2 (5) | 14 | 16 |
| Low achieving | 2 (2) | 13 | 15 |
| Total | 4(7) | 27 | 31 |

children's writing achievement scores and the number of times they made mention of meta-lexical thinking ($n = 31$). The result, $r_s = 0.51$ showed a statistically significant, moderate relationship between the number of mentions about words and writing achievement ($p < 0.01$). While most of the children mentioned thinking about words, these results suggested that talking (and thinking) more often about words was related to higher quality writing (Britton, 1983).

## 7 Discussion

The children in our study were very attentive to the communicative power of words. Expressions of meta-lexical awareness varied from talking about words as units of language that authors might choose, word by word, to write their stories, at the lower end of explicit representation and making choices, to an explicit reference to consciousness of choosing words with an intended perlocutionary effect (Austin, 1975) which seemed more sophisticated understanding. The observation of a child writing her story word by word accords with Gombert's (1992) notion that, at 7 years old, children might think of words as "part of the speech chain" (p. 74). The children who mentioned the more abstract concept, vocabulary, showed an understanding of the concept that a lexicon offers choices of words. This accords with the notion that developing a bank of words preceded reflection on the lexicon (Gombert, 1992). The properties of words seemed increasingly distinguished from referents in the children's thought.

The description of types of meta-lexical awareness showed that the children's representations varied in terms of the levels of abstraction. Analysis by the children that was increasingly abstract analysis might be conceptualised as more developed, shown in their awareness that words can be increasingly sophisticated, emotive, precise and varied. Our findings accord with Bialystok's (2001) argument that metalinguistic awareness can be conceived to be on a continuum of less to more rather than as a binary of awareness or not. Some of the types of meta-lexical awareness described by the children showed less explicit attention to language and interacted with the fluent expression of the child's implicit knowledge of language (Ellis, 2005; Van Lier, 1998). Some types of meta-lexical awareness showed the child thinking in a more sophisticated and abstract way about language. Those types which did not separate language from its referents objectified language less and were therefore considered less metalinguistic than those in which the children specifically referred to the language. The notion of the continuum allows varying types to be considered.

Alongside analysis, our findings suggest an increasing awareness of making selective decisions about word use. Children showed varied control over deliberate choice, from verbalising, to selecting, to refining, and to rejecting alternatives in their choices of words. By this

account, development can be conceptualised as expansive, not linear: the children were flexibly expanding their knowledge and control of different types of words as they expanded their control over their texts (Haas Dyson, 2009). The verbalisations also suggest that children use their meta-lexical awareness to engage in a collection of meta-lexical strategies when constructing a text. Less developed meta-lexical awareness was described in accordance with the knowledge telling strategy typical of novice writers (Bereiter & Scardamalia, 1982). On the other hand, greater sophistication was shown when writers considered the reader's response and described compositional strategies which were closer to the knowledge crafting strategy of expert writers (Kellogg, 2008). They considered the relationships between the meanings they wanted to express, the evolving text and the impact of their writing on a reader. However, high-achieving writers were also observed to employ the knowledge telling strategy, sometimes writing word by word. It may be, therefore, that writing strategies emerge in ways that align with the wave-like metaphor of strategy development (Siegler, 1996), with strategies emerging, and retreating in an ebb and flow, in interaction with context and challenge and rhetorical goals, rather than a transformational, stage-like shift.

Distanciation from the word (Dolz & Erard, 2000) and objectification of language were shown by some children who were able spontaneously to refer to words using metalanguage and showed more developed explicit representation. From Chen and Myhill's (2016) account, linking words with metalinguistic labels showed ability to think about an abstract concept and link it with a system, which paralleled with Vygotsky's (1986) theorisation of children's understanding of scientific concepts, abstracted from reality and linked to a system, rather than a word being seen as a property of a referent. However, even the best writers' metalanguage for talking about words when they were discussing their writing was limited. Myhill (2012) also found that whilst children did not have a metalanguage, they talked metalinguistically about their writing using everyday language. In this study, the children referred to words in everyday language, striving for ways to describe the rhetorical effects of words and improving their writing.

The children also showed awareness that lexical choice is important to writing quality (Wood et al., 2020). Using this everyday terminology, some children talked about striving for more complex vocabulary. We interpret this as both explicit representation and ability to make choices because the children were abstracting from the words in order to consider the nature of those words and consciously making selections to use them or not. The verbalisations indicated that these analyses were deliberate, and children knew that they were trying to access the mental lexicon to choose more sophisticated, evocative words, knowing that sophisticated vocabulary improves writing quality (Lawrence et al., 2010; Lesaux et al., 2010; Myhill, 2009).

The children's word choices linked with the genre they were writing. They expressed their desire to write about an interesting and exciting topic to recount as an experience with family and whanau. More able writers expressed that they were trying to choose interesting and exciting words to recount their experiences and help the reader to be a part of them.

The nature of children's verbalisations offers some evidence that children's metalinguistic strategies might have been self-extending. The children described engaging in rhetorical problem-solving while writing, thus prompting them to self-extend their networks of metalinguistic strategies. Children's analysis of language was described in terms of their intentions for their writing and their awareness of audience. In turn, their sophistication in attending to audience depended upon their analysis of words, comparison of nuances of meaning and identification of relationships between words. Clay (1991) proposed that strategies for reading were self-extending. Boocock et al. (1998) investigated the idea that the notion of self-extension applies to writing and found evidence of self-extension, when young children were learning how to write words. The children "developed important generative strategies.

They have learnt how to learn words independently, in order to write novel ones" (Boocock et al., 1998, p. 52). There was evidence that children in this study had developed increasingly complex strategies for making increasingly sophisticated lexical choices while writing texts. High-achieving writers expressed a range of meta-lexical strategies. These collections of strategies may have developed through self-extension because they may not have been explicitly taught. For example, one writer expressed a writing word by word strategy and a strategy for choosing explicit terminology to create their meanings.

## 8 Limitations of the study

Ours is a relatively small study of 31 children. As such, there is not sufficient data to claim that the differences we observed are in proportion to the population. Instead, we offer here observations of variation in the nature and types of children's meta-lexical awareness as they write. The verbalisations of what they were thinking were prompted with general prompts such as "Tell me what you are thinking". Although meta-lexical thinking was not specifically prompted, the children's expressions of meta-lexical awareness were not entirely spontaneous. Reactivity to the method is possible, in that asking the children to verbalise metalinguistic awareness may have prompted metalinguistic thinking. However, the children would not have mentioned metalinguistic awareness of which they were not cognizant. In addition, it is also possible that the children may not verbalise all that they were doing to produce a text, resulting in an incomplete picture of their metalinguistic awareness. Some children said they found it hard to write and say what they were thinking at the same time, and in this regard, the interviews encouraged reflection on writing and required a different kind of thinking. Again, while it is possible that children did not recall all of what they were doing, the children would not have verbalised anything of which they were not capable.

## 9 Conclusion

The findings of this study indicated a moderate correlation between writing achievement and the number of times students expressed meta-lexical awareness in their verbalisations. It seems, from this evidence, that thinking more often about words is moderately related to writing achievement. Moreover, in general, but not exclusively, increasingly sophisticated types of meta-lexical awareness were expressed by higher achieving writers. Although patterns were observed, there were always examples which did not follow the trend. Meta-lexical awareness might be conceived as developing along two interactive continua of increasingly explicit representations of language and attention to making choices of words to construct stories and affect readers.

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**Data availability** Raw data for the dataset are not publicly available to preserve the privacy of the children and the participating school, a condition of the University of Auckland Human Participants Ethics Committee approval for the study.

## Declarations

**Ethics approval** Ethics approval was granted by the University of Auckland Human Participants Ethics Committee, number 013389.

**Conflict of interest** The authors declare no competing interests.



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