

Morphological Correspondences in the Reading-Writing Relation among L2 Learners

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ABSTRACT

Studies show that morphological and lexical awareness is a particularly important variable for reading comprehension after the primary school years. Research on L1 students' reading and writing competence has revealed correlations between reading and writing with regard to metalinguistic awareness, specifically also with regard to the subtypes morphological and lexical awareness. On the other hand; studies of L2 reading and writing relations are scarce and partial. In this paper we study potential correlations between reading and writing regarding morphological and lexical awareness for 3rd – 6th grade students with Norwegian as a second language. A reading-writing pattern emerges showing that derivational morphological features in the students' reading correlate with derivational features in the students' writing, whereas we find no significant correlations for compositional and inflectional morphology in the reading-writing relation in our study. In addition, complex expressions, also called opaque expressions, are found to be partially understood by the students when they read, but these kinds of expressions are almost absent in their writing. The study contributes to filling in the picture of how the two literacy activities—reading and writing—interact in a L2 literacy development perspective.

INTRODUCTION

Extensive research has been undertaken for L1 students' reading-writing relations. Also for second language (L2) students, there exists ample research on reading and writing, but these are mainly separate investigations of the two modalities, they are seldom linked through correlation analyses. In this paper, we discuss links between students' reading and writing with regard to the reception and production of words. We examine the following question: "How do morphological and lexical aspects of L2 students' reading comprehension correspond to morphological and lexical aspects of their writing competence after the primary school years?" The question is explored with basis in small quantitative analyses of the reading and writing competence of Norwegian L2 students ($N = 28$) from third through sixth grade (8-11 years of age). The quantitative analyses are illustrated with literacy details from reading tests and written texts of a representative informant L2 student. The results are discussed in light of previous research on reading and writing in general, and research on the similarities and differences between the two literacy activities in particular.

Finally, we argue in favor of a pedagogic approach—called literature-based literacy education—as a didactic response to the emerging results regarding the L2 students' linguistic prerequisites for reading and writing in their second language. The pedagogic approach opens for integrating reading and writing in a way that takes advantage of both the similarities and the differences between the two literacy activities.

BACKGROUND: READING AND WRITING – SIMILAR AND STILL DIFFERENT

Langer and Flihan (2000) state that writing and reading are both meaning-making activities: "When people write and read, meaning is continually in a state of becoming. The mind anticipates, looks back, and forms momentary impressions that change and grow as meaning develops." Concrete correlations between reading and writing competence have been investigated on a broad basis for L1 students. For example, in a research program that started as early as in the 1950s, Loban and his team investigated the potential correspondence between reading, writing, listening, and speaking in a group of 338 (mainly) L1 children who attended kindergarten in 1952 (Loban, 1963, 1976). The researchers monitored the students over 11 years. They found a relatively strong correlation between the students' reading competence and their writing competence in fourth grade and again in sixth grade. Based on this and similar research, Fitzgerald and Shanahan (2000) hold that "reading and writing are constellations of cognitive processes that depend on knowledge representations at various linguistic levels (phonemic, orthographic, semantic, syntactic, pragmatic). Reading and

writing are connected (...), because they depend on identical or similar knowledge representations, cognitive processes, and contexts and contextual constraints.” (Fitzgerald & Shanahan 2000: 40)

Still, notwithstanding the similarities, reading and writing are different in terms of activity, strategy, and purpose. Langer (1984) finds that the processes of writing and reading are different in that students are slightly more concerned with bottom-up issues such as syntax, text, and lexical choices when writing than when reading, students are more aware of the strategies they use to get at meaning when writing than when reading. Juel (1988), in her review of the early research on the reading-writing relation, emphasizes the differences between the two literacy activities. Reading for meaning involves keeping track of whether comprehension is proceeding smoothly. Writing, however, seems to require more creativity. Juel and colleagues (Juel, 1988; Juel, Griffith, & Gough, 1986) consider reading as composed of decoding (i.e., word recognition) and (listening) comprehension. For writing, they hold, one needs to consider in particular spelling and ideation—understood as the generation and organization of ideas. Both components of writing reflect the more productive, or active, side to writing as opposed to reading. Fitzgerald and Shanahan (2000) also discuss differences between the two activities, differences that have didactic implications:

[c]loser inspections of reading-writing connections reveal important reasons why reading and writing are as separate as they are similar (...) Reading and writing encourage different enough cognitive operations that they offer alternative perspectives that can give rise to new learning or appreciation. Writing about a text, for example, leads to different types of rethinking than rereading alone provides. (Fitzgerald & Shanahan 2000:43)

As for L2 students, a certain amount of research has been done on their reading competence on the one hand and their writing competence on the other. In particular, it has been shown that morphological awareness—knowledge of the structure of words—and lexical knowledge are particularly important variables for reading comprehension for L2 students (e.g., Carlisle, 2004; Arnaud & Savignon, 1997). For writing, as reported by Crossley and McNamara (2010), differences in the perceived (holistic) writing proficiency of L2 students correspond to morphological and lexical features present in the writer’s texts (see also Crossley & McNamara 2009, Engber 1995, Ferris 1994, Lemmouh 2008). Specifically, Engber (1995) reports on the role of the lexical component as one factor in holistic scoring to compositions written by learners of English. She finds that error-free lexical variation correlates significantly with the holistic score in her data.

Much less research has been done on the *relationship* between L2 students' reading and writing. Agustín Llach (2010), an interesting example of the few studies of L2 reading and writing relations, explores the relationship between reading and writing in young Spanish learners of English as a foreign language. She finds that the level of L2 proficiency is important in establishing the nature and magnitude of the reading-writing relationship. For low proficient learners of English, she finds that the relationship is not strong enough to be significant, whereas for mid-low proficient learners of English, she finds a significant correlation between the students' general reading competence and their general writing competence in English. Her study is interesting as a general approach to the L2 reading-writing relation, but not specific about what particular linguistic or textual aspects that seem to correlate in the two literacy modalities reading and writing.

Aspects of Morphological and Lexical Awareness in Literacy

Studies of morphology and reading comprehension for both L1 and L2 students have shown that students first develop awareness of inflectional morphology and compound morphology. Later, after the primary school years, derivational morphology awareness takes over as an impact factor in reading comprehension (Kieffer & Lesaux, 2008; Kuo & Anderson, 2006; Miguel, 2012).

Arnaud and Savignon (1997) examine French-speaking English learners' receptive knowledge of rare words and "complex lexical units" in English, including idioms and metaphorical expressions. Such complex lexical units are also called "opaque expressions" (see discussion in e.g. Carlisle 2004). The researchers find that second-language learners improve their understanding of rare words and opaque expressions through training, but the learners' understanding of opaque expressions improve more slowly than their understanding of rare words. Kulbrandstad (1998) shows how her informant students with Norwegian as a second language (mis)understood metaphorical expressions when reading academic texts. To the extent that the metaphorical expressions were understood, they were perceived concretely, with consequent misinterpretation of the text. Polysemy and homonymy are also problem areas for the reading comprehension of L2 students. Laufer-Dvorkin (1991) refers to studies that illustrate that for a language learner, it is often difficult to decide whether a word is polysemous or homonymous. Bensoussan and Laufer (1984) show that polysemes generate the largest number of incorrect guesses in the reading-comprehension process. Chung (2012) reports from US National data that there is a huge reading-achievement gap between English language learners and English only students. 2009 National Assessment of Educational

Progress numbers show that the percentage of fourth-grade English language learners who tested proficient in reading (in English) was 30% below the percentage of proficient English only students. Chung holds that vocabulary acquisition must play a crucial role in filling this achievement gap.

Based on the mentioned studies of L1 and L2 students' reading and writing, one can reason that morphology and other aspects relating to the word stand out as particularly relevant features for a study of the correlations between reading and writing of L2 learners after the primary school years. With the described reading and writing research as back-drop, we now look into the details of the potential morphology and lexical correlations between reading (receptive) competence and writing (productive) competence for L2 students of Norwegian in our data.

DESIGN AND METHODOLOGICAL ASPECTS OF THE READING ANALYSIS

We have reading data for 28 L2 students from third to fifth grade. We use relevant subtasks from diagnostic tests from third and fifth grade as a measure of the receptive language competence for the students regarding morphology and lexical understanding in the Norwegian language (see [link for Wikipedia on the Norwegian language](#), and [link to Norwegian morphology summarized](#)). In addition, we have the students' total results on the same reading tests and the scores from what is called the national reading test. The correlation analyses are done with the statistics analysis tool **SPSS** (version 19 for Windows).

For our analysis of the students' writing, one text from each student in sixth grade is analyzed. We have writing data from 26 of the students for whom we also have reading data. We have looked at linguistic features connected to the morphology and lexical variables in their writing. The text is a fairy tale written individually at school by the students in class. The students did not receive help from the teachers or peers on formal issues. On content, the students got peer response from two other students; the peers asked one question to clarify the content, and the writer could respond to the question. In some cases, the response was incorporated into the final version of the text. They could use auto correction tools in the editor Word, but most students did not know this tool well enough—or enough of the language, perhaps—to use it effectively.

We define an L2 student as one who speaks a language other than Norwegian at home (Tonne & Pihl, 2012). Most of our informant students have Turkish as first language. Almost all of them were born in Norway. For our students, Norwegian is therefore not a foreign language, but rather the language of instruction and the official language of the country they

live in. Through their early school years, we consider our students to have reached a level of L2 proficiency that is above the critical level alluded to by Agustín Llach (2010) discussed earlier.

The designers of the diagnostic reading tests, report on the diagnostic tests in terms of research purposes: “[T]he results do not form a normal curve, and in research this big ceiling effect marks a weakness of the test” (Engen, 1999, pp. 84–85, our translation). Here, Engen (1999) refers to the fact that most students in an ordinary school class get a full score on most of the tasks, and some of them potentially could have mastered more difficult tasks. However, very few students in our informant group of L2 students got a maximum total score on the diagnostic tests. The reason is probably that the tests are not primarily designed for L2 students, even though these students are not exempted from taking the tests. Our students did, however, score close to maximum on certain subtasks, which we will discuss in relation to the analysis. We conclude that we may use the test results from the test for research purposes, but use them with caution; we here only compare the students with themselves, not with other groups of students.

Our L2 students’ morphological and lexical awareness and their reading comprehension

Our students took the national reading test in fifth grade. The national reading test is said to test reading comprehension, and is therefore more text oriented than the diagnostic tests. For the national reading test, reading comprehension is operationalized as testing the students’ ability to find, interpret, and reflect on information in texts (Roe & Lie, 2009).

The third-grade class diagnostic test is aimed at word-reading and reading comprehension skills, according to Engen (1999). The word-reading tasks in the diagnostic test to a high extent measure morphological awareness and related lexical issues. The tasks of the diagnostic test for third grade particularly require that the student knows the inflectional morphology related to nouns (numbers, definiteness) and verbs (tense), but also awareness of compound morphology is tested in one subtask.

In fifth grade, there is no subtask testing awareness of compound morphology. In addition to testing inflectional morphology as in the third grade test, the test in fifth grade includes what is called the *Word in Sentence* task. This task is formulated as yes/no questions. An example is “Can we put water in a chatterbox?” (The test uses the Norwegian word for *chatterbox*, “skravlebøtte” [“chatterbucket”]; this particular question should be answered *no*.) For many of the words in the task, it is difficult or impossible to calculate the meaning from the parts of the word; one must know the usage, which is often culture-specific, such as the

fact that expressions such as *chatterbox* are used metaphorically. The diagnostic test in fifth grade thus presupposes a relatively high morphological competence and knowledge of words where one cannot reason compositionally to get at the word meaning.

Our informants' scores on these diagnostic subtasks—measuring morphological and lexical competence—correlate in the following way with total scores on the third reading test, the national reading test in fifth grade, testing reading comprehension. The correlation (Pearson's r) between the word reading task in third grade, primarily measuring inflectional awareness, and the total score in the national reading test in fifth grade, is 0.53, significant at the 0.01 level. The same type of subtask with inflectional morphology in fifth grade shows a less clear correlation with general reading comprehension: $r = 0.40$, significant at the 0.05 level. The correlation between the diagnostic word-reading task in the diagnostic test in fifth grade, measuring awareness of derivational morphology and opaque expressions, on the one hand, and the national reading test on the other, is relatively high: $r = 0.54$, significant at the 0.01 level. Awareness of compound morphology as measured in the diagnostic test in third grade does not correlate significantly with reading comprehension measured in the national reading test, possibly due to a ceiling effect; almost all the students have a full score on the compound oriented diagnostic task already in third grade.

Our findings for Norwegian are in accordance with the aforementioned cross-linguistic research in the field (Kieffer & Lesaux, 2008; Kuo & Anderson, 2006; Miguel, 2012; Arnaud & Savignon, 1997; Kulbrandstad, 1998; Laufer-Dvorkin, 1991; Bensoussan & Laufer, 1984) in that we find that L2 students' morphological and lexical competence in their second language correlates with reading comprehension in that language. In particular our analysis shows, like prior research, that awareness of inflectional morphology has relatively high impact on reading comprehension in the early years of schooling (in third grade in our data), but less so later (in fifth grade). Awareness of compound morphology does not correlate with reading comprehension in general, at least not in third grade. However, derivational morphology and certain other lexical issues have a particularly great impact on L2 students' reading competence after the primary school years, in our data from fifth grade.

We now turn to the students' writing. How is – if at all – a student's receptive morphological competence manifested in his or her (productive) writing?

Morphological Awareness in the L2 Students' Writing

For our analysis of the students' texts written in sixth grade, we look at linguistic features connected to morphology and the lexicon, features that are comparable to those extracted

from the reading tests discussed above. The instances found in the text are counted. The features are specified in Table 1:

Table 1. Variables for the Analysis of the Students' Texts in Sixth Grade

| |
|--|
| Morphological characteristics |
| Inflection |
| Derivations |
| Compounds |
| Use of opaque expressions |
| Idioms |
| Metaphorical expressions |
| Text length, for relativization of the other variables |

For inflection, errors on nouns, verbs and adjectives are counted, whereas for compounds and derivations, the number of compounds and derivations (types and tokens) are counted. Also, it is searched for opaque expressions of the type idioms and metaphorical expressions. The average length of the 26 texts is 306 words, the shortest text consists of 171 words, the longest contains 535 words. The quantification of the morphological and lexical characteristics is relativized according to text length. We go through the findings in the following.

One especially eye catching observation in the examination of the set of texts, is that complex/opaque expressions are almost absent. There is one sole instance of opaque expression in the entire set of student texts in sixth grade. This one instance is a metaphorical use of the adjective *tjukk* ('thick'/'fat'/'big'): *Hei svarte heksen med tjukk stemme* ('Hi, the witch said with a thick voice'). Furthermore, the sixth grade writing shows that few students have problems with inflections, and that they use compounds and derivations, although to a moderate degree.

Our analyses of the students' sixth grade writing and fifth grade reading reveal no significant correlations between *inflectional* or *compound* morphological features. This result could be due to the mentioned reading test facts showing that all the students have a relatively good understanding of compound words early on. Little difference between the informant students in this respect results in there being no correlation between the understanding of compounds in reading and the students' use of compounds in their writing. As for inflections, the reading tests show that quite a few of the students struggled with the understanding of inflections on nouns and verbs in third grade, but these difficulties are less pronounced in the

reading tests in fifth grade. The class is therefore possibly also too homogeneous with regard to this feature – both in the reading comprehension and the writing production of inflections – for a correlation to emerge.

However, significant correlations are found in our data between reading and writing features of *derivational* morphology. The correlations found for derivational morphology are between the scores on the task *Words in Sentences* and the number of derivations found in the students' texts in sixth grade: Pearson's $r = 0.455$, with a significance level of 0.05. In addition, the number of derived words in the students' writing in sixth grade correlates significantly with the total score on the diagnostic test in reading in fifth grade: Pearson's $r = 0.624$, with a significance level of 0.01. That is, the productive competence concerning derivational morphology shown in this one text from each student in sixth grade correlates significantly with both the specific derivation feature in reading and the relatively general reading comprehension measure given by the total score on the diagnostic test in fifth grade.

Discussion

Although the students as a whole score relatively low on the reading subtest with opaque expressions in fifth grade, the scores show that they have *some* understanding of these expressions. Hence, the production of opaque expressions in the students' written texts is in a sense inferior to the students' receptive knowledge of the expressions. This difference is possibly connected to the differences between the two modalities reading and writing. As Juel (1988) puts it, writing seems to require more creativity. Hence, it may be more demanding to actively select and use an expression than to recognize its meaning (often only partially) when the expression is given.

To illustrate the word related features of the written texts in sixth grade, we look closer at one student's text. Amal, as we call her here, is born in Norway, with Turkish as her first language, Norwegian as her second. Amal scores in the low-medium range in her class on all the reading tests in Norwegian. Her fairy tale-writing in sixth grade consists of 329 words, a relatively long text. Amal does not seem to have problems with inflections (on verbs, adjectives and nouns) at this point in time, although other texts she has written prior to sixth grade, from third to fifth grade, do show some inflectional errors on nouns, adjectives and verbs.

On the fifth grade reading task related to derivations and opaque expressions (the *Word in Sentences* task), Amal's score is 15 out of 25, below what is considered a set critical limit. Looking at the comparable features in her writing, there are no opaque expressions and few

derivationally complex words in the fairy tale text. Counting types of derivations, we find the total of four: *lykkelig* ('happy', 'happily'), *merkelig* ('strange'), *egentlig* ('really'), and *prinsesse* ('princess'). Counting tokens, *lykkelig*, *merkelig* and *egentlig* are used only once, whereas *prinsesse* (or inflectional variants thereof) is used as many as 15 times.

In her text we furthermore find a few non-idiomatic uses of words: "Han ville egentlig ikke få halve kongeriket ..." ('He didn't really want to *receive* half the kingdom ...') (idiomatic: *ha* ('have') instead of *få* ('receive')). Another example of non-idiomatic use of words is the word *merkelig* ('strange'), which is used in the phrase "se rart på noen" ('look at someone, in a perplexed way'). Using *merkelig* instead of *rart* in this phrase makes a nonidiomatic impression. We therefore find that Amal has a somewhat experimental approach to the use of certain aspects of words. This may well be part of trying out the meanings of relatively basic words, eventually finding the more idiomatic use of those words. But still, in sixth grade, she refrains, like most of the other students, from using the more challenging, opaque expressions.

The non-idiomatic uses of words, the absence of opaque expressions and the restricted use of derivations in Amal's text seem to correspond well with her score on the *Word in Sentences*-task. The low *Word in Sentences*-score corresponds with the somewhat erroneous usage of words and the low lexical variation. As we have noted, Engber (1995) shows that there is a correlation between non-erroneous lexical variation and high holistic assessment of L2 students texts. Our data seems to indicate that this kind of relation carries over into the student's reading: Low lexical understanding as measured by the reading tests corresponds to the mentioned lexical variation features in the writing. This may indicate that a student with a low score on reading tests involving the understanding of opaque expressions would carry this low understanding over to his or her writing and be liable to be assessed in the lower end of the scale in a holistic assessment of writing, and vice versa. Also, Crossley & McNamara (2009) have shown that certain linguistic features present in the L2 student's text correlates with a holistic assessment of the text. Our data suggest that there is a connection between awareness of derivational morphology in reading and the use of derivations in writing. We may therefore hypothesize that high derivational awareness as measured in reading tests, correlates with a high holistic assessment in writing. One may also wonder whether such a connection may hold for opaque expressions. Further research on these issues will give more answers. It is relatively clear, however, that there are connections between specific types of linguistic awareness on particular linguistic aspects of reading and writing and also on holistic assessments of reading and writing.

As we have noted, our analyses of the students' sixth grade writing and the correlation analyses between their reading and writing reveal no correlations between inflectional morphological features of reading and writing. Taking Amal as an illustration again, we have noted that by sixth grade, the inflectional problems shown in her earlier writing seem to have disappeared. Corresponding to this fact, the fifth-grade diagnostic test shows that she has almost a full score on the inflection subtask of the reading test. The receptive competence of inflectional morphology thus seems to carry over into the productive competence.

Also, there was no correlation between reading and writing regarding compound morphology, the students have a relatively good understanding of compound words in their reading already in third grade. We find some, although not a great many, compounds in their writing in sixth grade. Amal is rather typical also here, she uses the four compounds *ødelegge* ('destroy'), *kjempeglad* ('very-happy'), *kongeriket* ('kingdom'), and *kongeslotte*, ('the-king's-castle') in her sixth grade text.

Hence, there is a significant correlation between reading and writing in our data regarding derivational morphology, but no significant correlations between other morphological competences, i.e., inflectional and compositional morphology. For inflectional and compound morphology this is probably due to a ceiling effect, by fifth grade all the informant students master most of the inflectional and all compound morphology in reading and also have few inflectional mistakes and present about the same use of compounds in their writing. Also, no correlation between understanding of opaque expressions and use of such expressions in writing is found, due to the almost total absence of such expressions in the informants' writing.

Our data show that a part of the reading pattern carries over into writing. Derivational awareness as manifested in the students' reading correlates with use of derivational morphology in their writing. But awareness of inflectional and compound morphology does not correlate with a general measure of reading comprehension, and does not say much about how these subtypes of morphology are used in writing, either. These results indicate that certain types of word-related awareness, i.e. derivational awareness and awareness of opaque expressions, are crucial for both reading and writing in a second language.

Reading and writing are at the same time similar and different activities, probably requiring the same type of linguistic abilities from the student, but perhaps drawing on different aspects of these abilities. As Langer (1984) and others observe, we therefore find that one is normally more productive, more active, more aware of one's strategies when writing than when reading. This productiveness comes at a cost, it seems, i.e. complex and

other types of difficult words are more demanding to produce than to “receive”, and are therefore produced to a lesser degree in writing compared to the degree to which they are received, or understood, in reading.

As we saw earlier, Fitzgerald and Shanahan (2000) discuss differences between the two activities for L1 students, and they draw some didactic implications from these differences:

Reading and writing encourage different enough cognitive operations that they offer alternative perspectives that can give rise to new learning or appreciation. Writing about a text, for example, leads to different types of rethinking than rereading alone provides. (Fitzgerald & Shanahan 2000:43)

The didactic implication seems to be that there is a synergetic effect of working with the two similar but still different literacy activities in combination. How can the particularly important awareness of derivational morphology and opaque expressions be enhanced for L2 students in such a synergetic reading-writing approach?

COMBINING READING AND WRITING IN LITERACY EDUCATION

The more words a student understands, the more easily she may learn a word, and the more she can understand ... This phenomenon is often called the Matthew effect, discussed first in Stanovich (1986): “For everyone who has will be given more, and he will have an abundance. Whoever does not have, even what he has will be taken from him” (Matthew 25:29, New International Version of the Bible). Good reading comprehension – and also as argued here – varied production of words and expressions in writing – is connected with advanced morphological awareness and a broad and deep understanding of words in the language. Receptive and productive morphological awareness of derived words and opaque expressions is acquired only through a wide enough and good enough exposure to and use of the relevant language. Our informants and many other L2 students are less exposed to the language of instruction, their second language, than their L1 peers. It is therefore necessary to offer a pedagogical response that draws the consequences from the facts that L2 students generally have less exposure to the language of instruction than L1 students, and that they have lower morphological awareness and lexical competence than L1 students, as manifested in their reading and writing.

Anmarkrud and Refsahl (2010) point out that when most—about 90%—of the words in a text are known by the reader, he or she can use the context to understand the unknown words. Thus, when the reader understands less than 90% of the words in a text, the (negative part of

the) Matthew effect is likely to set in. We hold that what may be called *literature-based literacy education* (also called “book-flooding programs”), with good selection of high quality literature and structured work in school with both fiction and fact-oriented texts, may reduce the Matthew effect. Here, we argue that such an approach, but with an extra weight on writing in connection with the reading, is particularly literacy enhancing.

In literature-based literacy education, reading a great amount of fiction and fact-based literature is a central part of the pedagogy. The students are given access to fiction literature and a wide selection of literary genres of varying difficulty. The pedagogic work is organized around the students’ reading and writing. Through structured cooperation between the school and the library, the students have a rich pool of books from which to choose. They play out dramatizations of selected literature and visit the theater and the cinema, to see works related to what they read (Pihl, 2009, 2012). The students talk about what they read and share their reading experiences with each other and with adults (Gambrell, 1996). They write reviews, stories, and poems related to what they read, and they write to further explore school subject content. They draw, paint, and listen to read-aloud sessions given by the teacher and librarian, and often have author visits (Allekleiv & Lindvall, 2003). The students are given time in school to read quality literature that interests them and fits their competence. They select books with help from the librarian and the teacher.

Carlisle (2007) explains why such an approach may be effective, in particular for the learning of words that the students otherwise do not encounter in their daily lives (like many derivations and opaque expressions):

If a word is [not understood], an inferential process is initiated such that cues from the immediate context of the new word are used to assign some sort of meaning, if only a vague association with the topic [...]. This process is called incidental word learning. [...] Further encounters with the word [...], or even with its constituent morphemes, will lead to increased depth of knowledge about the meaning(s) and uses of the word and word parts. Incidental word learning, drawing on both structural analyses and context analysis, is an incremental process. (Carlisle 2007: 82-83)

One imagines that the student incrementally develops a more general understanding of what a word means, across situations. Students who are scarcely exposed to their second language at home and have few L2 linguistic and cultural experiences can make good use of such exposure and such experiences through working with literature in school.

In literature-based literacy education, one views the literacy development of the students as a kind of social practice (Barton 2007, Street 2003). One assumes that people develop a passion for reading in contexts in which reading is a social, fun, and meaningful activity

(Barton 2007, Barton et al. 2000, Martin-Jones & Jones 2000). The students will presumably read for pleasure, and therefore read a lot (Tonne & Pihl 2012). It is found that children achieve reading engagement when they are included in the process of choosing books for reading (Allekleiv & Lindvall 2003, Axelsson 2000, Elley 1991, Morrow et al. 1997, Gambrell 1996, Roe 2011). Motivation is also directly connected to the learning of words:

For children, as well as adults, learning an unfamiliar word begins when it is encountered in an oral or written language context and when understanding the word matters to the listener or reader.

(Carlisle 2007: 82)

As we have seen, reading and writing are in many ways similar actions, but different regarding activity, strategy, and purpose, and may therefore complement each other cognitively. This is interesting in view of literacy enhancement. If writing complements the students' reading, it may drive the students forward in their search for meaningful knowledge. Armbruster, McCarthey, and Cummins (2005) explicate this connection between writing, creativity, and learning. They hold that the act of composing promotes thinking and learning. They also maintain that writing can be a tool for developing concepts and generalizations, promote critical thinking and problem solving, analyze and reflect on their thinking and understanding, gain new insights, and contribute to learning and remembering content information. Thus Armbruster et al. (2005) hold various tasks involving writing provide good chances of developing academic knowledge, reasoning, and literacy skills. As school texts and other fact-oriented texts are often teeming with derivations and opaque expressions (e.g. Golden 2005), this way of working with the texts may enhance these aspects of concept learning in particular.

In other words, writing as part of the work with academic subjects seems to enhance the acquisition of academic knowledge and concept and literacy skills. Trøite Lorentzen and Smidt (2008) also emphasize precisely this when discussing the Norwegian national curriculum and what is construed as the basic skills: reading, writing, mathematical skills, oral skills, and digital skills. These skills must be included in all subjects in school. Trøite Lorentzen and Smidt argue that students should write in all subjects because it gives meaning to their writing. Students write to learn, which enables them to achieve the academic goals in school (Trøite Lorentzen & Smidt, 2008). This is substantiated in a much-sited study by Morrow, Pressley, Smith, and Smith (1997), where they examine the effect of a literature-based program integrated in science class. They show that the group that included extensive writing in their organized activities scored higher on two of three content measures, on

writing skills and other literacy skills. As presented by Elley (1991), Axelsson (2000), and Alleklev and Lindvall (2003), this holds in particular for language minority students who read fiction and other literature in the language of instruction and write in connection to their reading, by incidental word learning through motivating reading and writing, exploring various aspects of texts, with their opaque expressions and derivations.

In other contexts, we also find evidence that treatment of the school subject content through an interaction of writing and reading provides an additional positive effect on literacy-related skills. The results from PIRLS 2006 show for example that teachers who report that they engage students in more activities after reading have students who have better reading skills, and students who say that they often participate in these activities generally have better reading skills (Begnum, Daal, Grabielsen, & Solheim, 2007).

An integration of reading and writing in a literature-based literacy education is essential for the enhancement of literacy of L2 students. Pedagogical use of library resources and the active creation of texts and other products relevant to the student's reading, particularly contribute to increasing students' literary experience of culture-specific codes in the language, often codified by derivations and opaque expressions.

CONCLUSION

In this paper, morphological and lexical relations between students' reading and writing have been explored. The quantitative comparative analysis shows that morphological and lexical awareness in the students' reading, more specifically awareness of derivations and opaque expressions, corresponds to the use of derivations in the students' writing. The students do not, however, use opaque expressions in their writing although they to some degree understand at least some of the expressions when they read. The results indicate that certain types of word-related awareness, i.e. derivational awareness and awareness of opaque expressions, are crucial for developing both reading and writing in a second language.

The quantitative study explicates similarities and differences between reading and writing regarding receptive and productive aspects of the linguistic competences connected to morphology and lexical issues. The two activities probably require or presuppose different aspects of the underlying linguistic abilities. Reading and writing may also affect, or train, linguistic and other cognitive abilities in dissimilar ways.

We have argued in favor of a pedagogic approach—called literature-based literacy education—which is adequate given the linguistic prerequisites of the students and which

integrates reading and writing. In literature-based literacy education, students read a rich selection of fiction and factual texts—often through structured cooperation between school and library—and we have here emphasized writing as part of their work with factual and fiction literature. L2 students experience linguistic and cultural issues to which they otherwise often have little access, and they are prompted to work productively with these issues through writing. They come into a good circle of reading and writing, in which they steadily increase their cultural background knowledge, and develop and improve content knowledge, morphological awareness, and knowledge of opaque expressions.

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