

Development of early literacy in multilingual education





COLOPHON

Radboud University Nijmegen conducts research on the effects of bilingual education on the development of vocabulary and phonological awareness in relation to lexical specificity in preschool students and the development of early literacy and reading skills. Two international projects have been conducted in this area in cooperation with the Ontario Institute for the Study of Education (Toronto, Canada). In this publication the results of these and related studies are translated into practical insights and advice for early literacy education in the multilingual classroom.

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Introduction

This publication is about vocabulary, awareness of sounds in words and learning to read in the context of multilingual education. Vocabulary and phonological awareness are important predictors for literacy development in young children. Moreover, recent studies show that especially the development of lexical specificity plays a crucial role in this process. Knowledge of the development of these aspects and their mutual correlation is relevant for teachers who are involved in teaching reading and spelling to young students in a multilingual education context. How does students' multilingual development influence the development of early literacy? And what is the effect of the development of different aspects of early literacy on the quality of their multilingual skills?

For some time research has been done at the Radboud University Nijmegen on the effects of bilingual education on the development of vocabulary, phonological awareness and early literacy and the role of lexical specificity on these aspects in young children. In addition, two international projects have been conducted in this area in cooperation with the Ontario Institute for the Study of Education (Toronto, Canada). In this publication these research results are discussed and translated for those who work with students in the lower grades of primary education.

In this publication, the following questions will be addressed:

1. How are the different aspects of early literacy correlated? And what about these aspects in a multilingual context, for example for students who learn a second language in school?
2. Is it possible to train specific aspects, in order to foster or additionally stimulate the development of early literacy?
3. Does the development of aspects of one language influence the development of those in another language? And does training one language also affect the development of the other language?
4. What practical recommendations can be given for the stimulation and monitoring of early literacy in two languages, in multilingual education?

We will start with an explanation of a number of key concepts concerning early literacy, which are used frequently in this brochure. The concepts vocabulary development, lexical restructuring, lexical specificity and phonological awareness – and their mutual relationships – are described and illustrated in the textbox below.

► Vocabulary development

Vocabulary development is in full swing in young children: every day they acquire many new words, that are stored into their long term memory. In this way, children seem to have a growing 'dictionary' in their head, also known as their mental lexicon. Vocabulary development appears to be an important predictor for the degree of further development of language and literacy skills. Both the *quantity* and the *quality* of the vocabulary are relevant. The quantity denotes the size of the vocabulary: how many different words does a child know, and thus are stored in the lexicon? The quality is at least as important: how specific, that is, with what features are new words stored in the mental lexicon? This concerns both the semantic (meaning) aspects as well as phonological (sound structure) aspects. The larger the vocabulary size and the more and richer specified, the better the development of the vocabulary and subsequently the development of aspects of early literacy as well, such as phonological awareness, letter knowledge and word reading.

► Lexical restructuring

With a growing vocabulary, children learn more and more words that can sound similar to words they already know (for example /bear/ and /pear/. If more of these types of 'phonological neighboring words' are included in the vocabulary, it becomes necessary to pay more and more detailed attention to the sound structure and shape of the words in order to be able to distinguish them properly from each other. This requires precise speech sound perception: children must be able to hear and recognize the different sounds in the words. In order to be able to remember the words well and to continue to distinguish them from each other, it is important to also store these words with very precise specific sound structure characteristics in the mental lexicon. At the beginning of vocabulary development, it is sufficient to store only global characteristics of the sound form of words (for example, with words such as /doll/ and /cat/), but if other words are acquired that share similar sounds (e.g. /ball/, /tall/, /call/, and /hat/, /rat/, /fat/) then the words need to be stored with increasingly precise sound structure characteristics, and this is also necessary for the previously learned words /doll/ and /cat/. We call this process "lexical restructuring". A growing vocabulary makes it necessary for children to notice further refinements in the sound forms of words and to store words with more and more precision of their sound structure characteristics.

"You can indeed see a connection between phonological awareness and vocabulary. For example: rhyming and auditory exercises are easier if you have a larger vocabulary."

► Lexical specificity

Lexical specificity concerns the extent to which words, together with their specific characteristics, are stored in the mental lexicon of the child. Each word that a child knows is saved in the mental lexicon with its own characteristic sound structure, also called the phonological representation (in other words, the precision with which the sound-characteristics of a word are stored) is of great importance for the development of phonological awareness and early literacy and is a predictor of the development of reading skills.

► Phonological awareness

Phonological awareness is the ability to consciously use, and reflect on the use of, speech sounds in words. This concerns, for example, awareness of sound groups (syllables) and of rhyme in words, but also awareness of the position of sounds in words (at the beginning, in the middle or at the end of a word, for example). Awareness of sounds and their position in words and being able to 'play' with them helps with recognizing letters and developing letter-sound correspondence. Scientific research has shown that the degree of phonological awareness is an important predictor for the degree of development of early literacy, such as knowing letters and reading words.



1 Everything is connected

The figure below shows the coherence between these concepts: a growing vocabulary leads – via lexical restructuring – to a greater degree of lexical specificity of the stored words. This leads to stronger phonological awareness. The degree of phonological awareness in turn is a predictor for the development of early literacy, such as letter knowledge (letter-sound correspondence) and

learning to read words. At the same time the opposite effect is also true. A stronger phonological awareness in turn supports the development of for example lexical specificity and word reading skills support vocabulary growth.

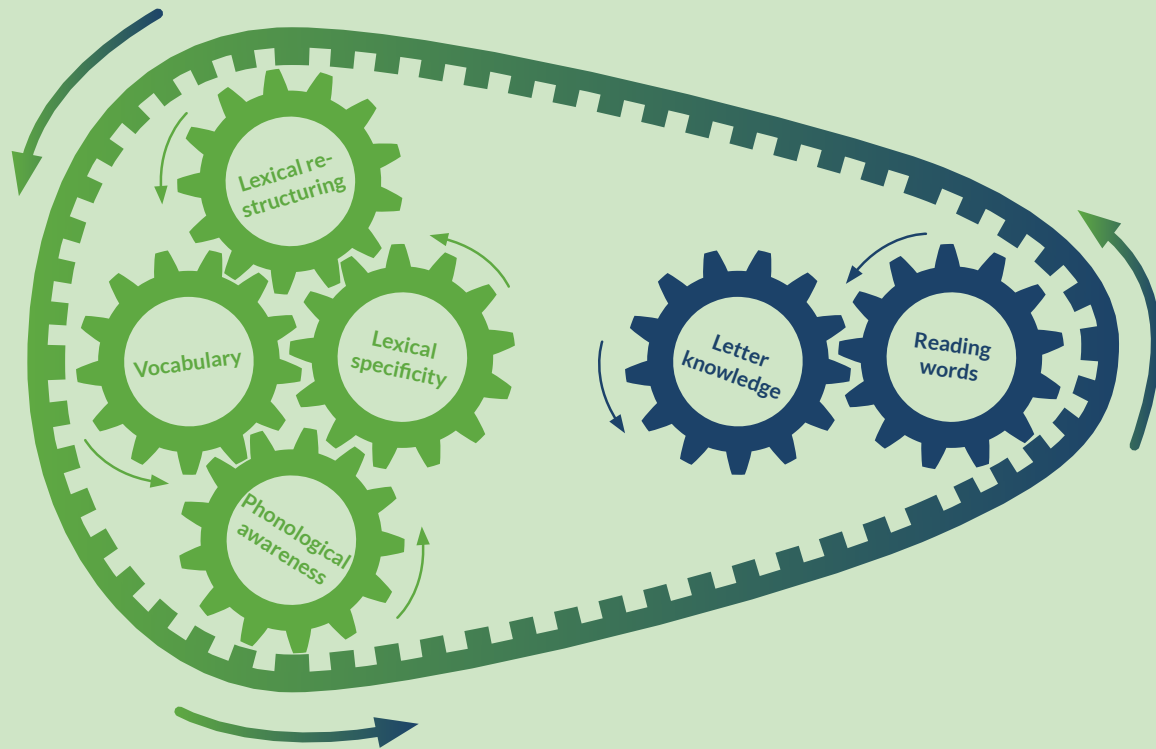


Figure 1
This figure portrays the development of phonological awareness and early literacy. The different aspects interact and influence each other.



Vocabulary quality defining for phonological awareness

In pupils who learn a second language at school, the vocabulary in the second language (the school language) is often still small in comparison to that in the first language (the home language). From the information above we now know that having a small vocabulary can have a negative effect on the further development of phonological awareness and early literacy. Thus, second language learners at school are at risk of potential delays in the development of phonological awareness and learning to read in the second language.

In a longitudinal study – running from year 1 Kindergarten to the end of 1st Grade – Janssen et al (2017) investigated the development and interrelationships of vocabulary, speech perception (perception of words and sounds), the lexical specificity of words and phonological awareness in Dutch. They did this in Dutch primary schools, with (monolingual) pupils with Dutch as their first (and only) language and with bilingual pupils with Turkish as their first language (L1) and Dutch as their second language (L2). It was expected that especially bilingual pupils with a relatively small vocabulary in Dutch would also have poorer phonological awareness.

However, this study found that children's vocabulary size and growth did not predict their

score on the phonological awareness test. For both monolingual and bilingual learners, it turned out to be especially important how good students were at perceiving – and learning about – the speech sound characteristics of words and the degree to which the words in the mental lexicon are phonologically specified. Thus, even bilingual students with a relatively limited vocabulary in their second language – Dutch – turned out to be able to develop good phonological awareness in Dutch, provided they were also good at speech sound perception and had rich phonological representations of words in their lexicon.

This underlines the importance of speech sound perception and lexical specificity in vocabulary development. It also refines our understanding of the relationship between vocabulary and phonological awareness: it is not so much the size of the vocabulary – or the *quantity* of the number of stored words – that is decisive, but rather the degree of lexical specificity in the phonological representations in the vocabulary – i.e. the *quality* of the stored words.

2 Training has impact

Although the size of the vocabulary is not so much predictive of phonological awareness, the expansion of the vocabulary and the growth of the vocabulary are important in themselves, because it means that more and more words are learned that may sound alike. If many of these phonological 'neighbors' are stored in the mental lexicon, attention to the specific characteristics of the sound structure of the words 'automatically' becomes necessary in order to properly distinguish, recognize and store the words in the mental lexicon.

This process of lexical restructuring is usually 'spontaneous' based on vocabulary growth, provided that enough phonological 'neighbors' are added with the new words. The question now is: is it possible to help the lexical restructuring a bit, give it a 'boost', as it were, and train the degree of lexical specificity of words, by teaching children new words with many phonological 'neighbors', which also strengthens phonological awareness and subsequently also stimulates early literacy – such as letter knowledge and word reading?

► Training lexical specificity with a word learning game

To investigate whether lexical specificity is trainable and what effects this has, Van Goch et al. (2014) developed a word learning game for young children (4 to 6 year olds), in which through a computer game a number of new words are taught that sound similar to other new or previously learned words, for example /lier/ (lyre), /nier/ (kidney), /pier/ (earthworm), /bier/ (beer). The sound difference in the words offered in the game varies. In some cases the difference is quite large, with several sound characteristics differing from each other, such as in the pair of words /nier/-/pier/. Three types of characteristics are different here, namely the place of articulation, the manner of articulation, and voicedness. In other cases the difference is very small or even minimal, as in /bier/-/pier/. This last pair of words is called a 'minimal pair': they differ from each other only on a single sound characteristic, in this case only in voicedness /b/-/p/, while the place of articulation (bilabial) and the manner of articulation (plosive) are the same.

The idea is that pairs of words with large sound differences are easier to learn and distinguish from each other, and that this becomes more difficult as the sound difference becomes smaller. The new words offered in the game are existing words that we know young children haven't acquired yet, for example /lier/ (lyre) or /poel/ (small pond). Some of the words also resemble very well-known words

in sound form, which we know that young children have already learned and have therefore already stored in their mental lexicon, for example /bier/ (beer) or /vier/ (four).

In the training phase of the game, words are presented audibly one at a time while four different pictures are shown on the screen. The child is asked the question: "What do you think a... [target word] is?". In response to the question, the child must then touch the pictures on the computer screen. If the correct picture has been chosen, the child is shown a picture of a clown as a positive feedback.

In the test phase of the game, it is examined how well children score on recognizing the newly learned words and whether they can distinguish between the various new and previously learned words based on the sound form.

The score on the word learning game can then be compared to scores on tests for passive and active vocabulary knowledge, phonological awareness (such as rhyming, adding or omitting sounds in words, etc.) and later also letter knowledge and word reading.

Research by Van Goch et al. (2014, 2016) and also Janssen et al. (2015) has shown that it is indeed possible to train lexical specificity in Dutch-speaking children by offering these types of phonological 'neighbor' words and that this in turn also has a positive effect on phonological awareness and other aspects of early literacy. The researchers developed a word learning game on the computer especially for this study. The description and further explanation about the design of the game can be found in the separate box below.

It was expected that by playing this game – containing words that are very similar in sound form – children would have more focused attention to sound differences between words and thus focus on the sound structure of both new words and previously learned words. The idea is that in this way the children will, as it were, include more 'phonological neighboring words' in their mental lexicon and will thus also store the sound characteristics more precisely. Via lexical restructuring the already stored sound charac-



“The exercises for auditory analysis and synthesis and phonological awareness that are done in English in the morning (like recognizing letters and sounds in words, etc.) are repeated as much as possible in French in the afternoon. The connection is made explicit. In these exercises we start with sounds that are the same in both languages.”

teristics of already learned words will also be stored more accurately. In this way, the lexical specificity of the words in the mental lexicon is further expanded and more detailed, i.e. the phonological representation of words in the lexicon becomes ‘richer’. In turn this could have a positive effect on the development of phonological awareness and aspects of early literacy.

The research showed the following: students’ rate of success in this game, and thus at learning and distinguishing words that sound similar, predicts how many words they know, how well they know these words, how well they can rhyme, how much letter knowledge they have and also how well they can read (decode) words. The ability to successfully distinguish words that sound similar appears to indeed be an important step in the development of vocabulary quality, phonological awareness, and early literacy. The way in which sounds of words are learned, stored and structured seems to be crucial here. The conclusion is that the degree of lexical specificity (and its trainability) is predictive of the degree of development of vocabulary quality, phonological awareness and aspects of early literacy.

In the classroom: form-focused vocabulary instruction

Individually playing a word learning game on the computer with words with small sound differences appears to have a positive effect on phonological awareness and various aspects of early literacy. Could the same effect also be achieved in a different way, which is useful in a classroom situation, appropriate to the daily teaching practice at school, while working with groups of children? For

example, would it also be effective to work with young children in a classroom setting at school to expand their vocabulary, paying special attention to the sound form of words?

To investigate this, Janssen et al. (2019) designed two types of classroom lesson sequences for vocabulary development for their intervention study. These lessons were conducted with young children aged approximately 4.5 years (Kindergarten year 1), including both L1 and L2 learners of Dutch, with different levels of vocabulary at the start of education. The children were divided into two intervention groups for the study. In both groups, vocabulary was expanded in class through the interactive reading of a picture book, in which new words were presented to the children. For four weeks, one group of children received explicit instruction about – and practiced with – the sound form of the new words (‘form-focused’ instruction), while the other group received instruction with special attention to and practiced with the meaning characteristics of the new words (‘meaning-focused’ instruction).

The meaning-focused instruction is in line with the more commonly used vocabulary didactics in education, where new words are usually taught within a semantic theme (e.g. ‘animals’ or ‘on the farm’). Attention is paid to different meaning characteristics of the new words and their mutual meaning relationships, which are often represented in the form of a semantic ‘word-web’.

The researchers’ question was whether the two types of instruction had different effects

on vocabulary development and on two precursors of reading skills: phonological awareness and letter knowledge.

In addition to measuring vocabulary development (passive and active vocabulary knowledge), phonological awareness and letter knowledge, the children were also tested on how well they did on recognizing minimal pairs of words (via the word learning game) and whether this also influenced the outcome of the intervention.

The results of this study can be summarized as follows:

- a) Both groups of children had an equal growth in their passive vocabulary, but children in the form-focused group showed more growth in phonological awareness and letter knowledge than children in the meaning-focused group. Surprisingly, the children in the form-focused group also had a stronger growth in active vocabulary: they were better and faster at naming pictures and giving more meaning characteristics of new words than the children in the other group.
- b) Children who were better at recognizing minimal pairs of words (in the word learning game) showed strong growth in letter knowledge and in active vocabulary, but this was only the case for children in the form-focused group. Thus, it seems that being able to notice minimal phonological differences between words helps to benefit from the form-focused vocabulary instruction.

This study shows that learning about the form of new words in a classroom approach has benefits for young children. It can stimulate growth in both vocabulary and early literacy, also in mixed kindergarten groups with both L1 and L2 children. In addition, the results show that a high degree of being able to recognize minimal differences in sound form between words promotes growth in letter knowledge and active vocabulary, if the instructions in the classroom focus on the phonological form of the words.

It is therefore recommended to not only give instructions about the meaning of words when teaching new words in kindergarten groups. Explicit instruction on the form of words can lead to additional stimulation of vocabulary growth and the development of skills associated with early literacy, in L1 and L2 children with different levels of vocabulary at the start of education. Further on in this brochure we describe examples to work on this in your own teaching practice.

3 Early literacy and multilingualism

The first language helps the second language

Janssen et al. (2015) also applied the word learning game described above in research into the Dutch language development of young bilingual pupils (\pm 4.5 years old – kindergarten year 1), with Turkish as their first language (L1) and Dutch as a second language (L2). Children who start formal education in a second language may show slower vocabulary growth and subsequently experience disadvantages in literacy development. The question here was: can lexical specificity training stimulate phonological awareness in Dutch of bilingual children?

Using the digital word learning game, the children learned new Dutch words, with only very small differences in sound structure be-

tween the words, as can be seen in minimal pairs of words, for example /bear/-/pear/. (See the text box on page 8 for a description of the game). For this study, half of the words in the game were composed in such a way that they contain phonological contrasts (sound differences) that also occur in Turkish. The other words had phonological features and contrasts that only occur in Dutch and not in Turkish.

Prior to the game, the phonological proficiency in Dutch was measured in all children. After training through the game, this was measured again and the following emerged: training with the word learning game resulted in both L1 and L2 children improving phonological awareness in Dutch. The L2 chil-

► Bilingual: a (dis)advantage?

With regard to vocabulary development in multilingual children, the disadvantages are usually seen: the size and growth of the vocabulary in the second language (for example Dutch) is often much smaller for a while than in (Dutch) monolingual children. If the second language is used as school language and children have to learn to read in this language, then bilingual pupils with their limited vocabulary in the second language seem to be at a disadvantage. We have seen above that this disadvantageous picture needs to be nuanced: second language learners appear to respond well to training in speech perception and lexical specificity in the second language. In this way they can also catch up with precursors of early literacy, such as phonological awareness.

On the other hand, with figure 2 in mind, multilingual children could also benefit from their special linguistic context. This is because they build up, as it were, one large multilingual lexicon, which they fill with different words from both languages. As a result, there is a greater chance of the occurrence of many words that share sound similarities, because it is not only about the sound differences and sim-

ilarities between the words within each language separately, but also about the comparison between the words of the two languages together. As a result, the multilingual lexicon of the second language learner is expected to contain more 'phonological neighbors' more quickly than the lexicon of a monolingual child, and these 'neighbors' can also be noticed earlier by the bilingual child. The idea is that bilingual children therefore 'automatically' also focus more attention on sound differences and the sound structure of words, so that they can properly distinguish and store the different words within and between the languages.

In this perspective, it is assumed that multilingual pupils have an advantage over monolingual children, because they are more sensitive to sound differences between words, or have a greater 'lexical sensitivity', as a result of which the process of lexical restructuring is particularly stimulated in them. This sensitivity helps them to strengthen and accelerate the lexical specificity of the stored words in their mental lexicon, both in the first language and in the second language.

Bilingual: a (dis)advantage? It depends how you see it!

dren generally scored somewhat lower than the L1 children on phonological awareness in Dutch, but the training with the game made the L2 children catch up with their peers: they became almost as good as the L1 children in phonological awareness, especially with words that showed a phonological overlap between their first language Turkish and their second language Dutch.

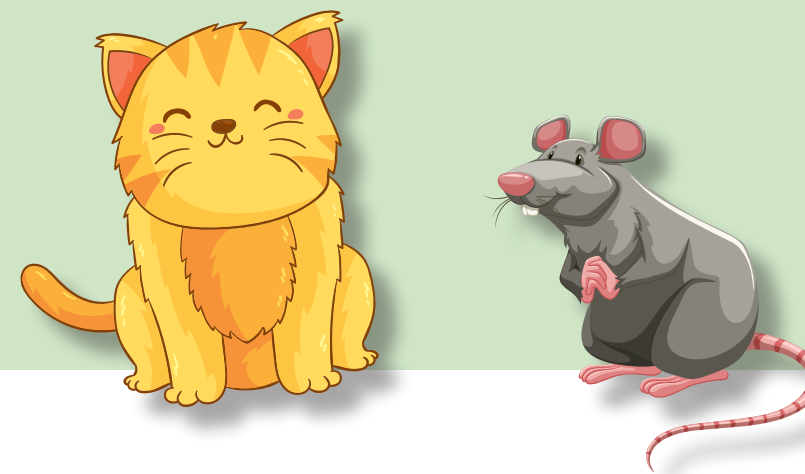
The conclusion is that learning to distinguish words that differ only minimally in their sound structure (for example, /bear/-/pear/), stimulates the development of phonological awareness, both in monolingual children and in second language learners of Dutch. Knowledge about the phonological contrasts in L1 (Turkish, the stronger language) seems to help learning lexical specificity in words with similar phonological contrasts in L2 (Dutch,

the less strong language). It is indicative of the idea that a form of 'linguistic transfer' may occur in bilingual children, whereby knowledge of one (stronger) language (Turkish) can be 'transferred' to knowledge of the other (less strong) language (Dutch) and can therefore also influence the development of the other language.

Phonological awareness in two languages

Research by Kwakkel et al. (2021) concerns the development of phonological awareness in the context of bilingual education Dutch – English. From the start, the children were taught in Dutch during half of the time in school and in English during the other half of the time. For all children, Dutch was the first, stronger language (mother tongue), English was the second, foreign language learned at school, in an immersion situation. Among

"Students find it interesting to see and hear the differences and similarities and are making comparisons between languages interesting. They play with language. For example the letter 'j' or 'g' that is connected to different sounds in the two languages. And the word 'pain' that in one language (English) is a completely different word with a very different meaning than 'pain' in the other language (French)."



other things, phonological awareness was measured in preschoolers in Kindergarten year 2 (5-6 year-olds), in both languages. It appeared that the level of phonological awareness in English was directly predicted by the level of phonological awareness in Dutch. In other words: children who were good at tasks for phonological awareness in Dutch were also good at these types of tasks in English.

The study by Yuan (2021) focused on factors that influence the development of phonological awareness in Chinese-Dutch bilingual children in the preschool group. It appeared that in these bilingual children the degree of phonological awareness in Dutch (their L2) was partly determined by the size of the passive vocabulary in Dutch and how good they were at speech sound recognition in Dutch.

and have not only looked at phonological awareness, but also at letter knowledge and word reading and the transfer effects from one language to another.

Bilingual training of lexical specificity

In Canada, Krenca, Segers, et al. (2020, 2022) investigated phonological awareness and lexical specificity in bilingual (L1 English, L2 French) preschoolers who attended school in French. Training of lexical specificity (LSP) is central to the studies in Canada, looking at its correlation with phonological awareness and word reading in both languages.

These studies made use of the word learning game (lexical specificity training) that had previously been developed and applied for Dutch in the studies by Van Gogh (2014) and

“Use words connected to the present classroom theme or topic to present letters and sounds. Present sounds and letters in a functional setting as much as possible, even when the lesson is not about the letters. For example, with the theme ‘hospital’: when you are playing a doctor, actually write down some real words instead of some scribbles. Repeatedly pay attention to sounds in both languages multiple times a week, in different contexts.”

In addition, however, the degree of phonological awareness in Chinese also appeared to have a positive effect.

Both studies seem to provide indications for a possible linguistic influence (linguistic transfer) of the development in one language on the other language in bilingual children, but this cannot yet be determined with certainty. This is because these studies only involved one moment when skills in both languages were measured, and no longitudinal study has been done with multiple measurement moments.

The studies in bilingual education in Canada discussed below have a longitudinal design

Janssen (2015). The game has been adapted and further developed for use in schools in Canada, where an English and a French version have been made. For further explanation of the game, see the text box *‘Training lexical specificity with a word learning game’*.

These studies involved training of lexical specificity (LSP) in both languages (English as a strong language, French as a second language) right from the start at school, while phonological awareness and word reading were measured at later times in the school year. The findings were as follows: children who showed success in English LSP at the first measurement point (T1) also performed

► Multilingual education

With the term ‘multilingual education’ we refer to the situation in which multiple languages are used for instruction in the classroom setting. In some countries this happens because there are multiple national languages (for example in Canada with English and French, but also in The Netherlands with Dutch and Frisian), in other countries because they want to teach students a second language from a young age. National and international policy can support this. Within the European Union, for example, the commitment has been made that all students in Europe will learn to use multiple languages from a young age (see Council of Europe - [Language Education Policy](#)).

In Canada, the demand for French Immersion programs is continuing to increase. French Immersion is an additive bilingual program wherein the aim is to produce sequential English French bilingual citizens who have communicative competence in both of Canada’s official languages. It is specifically geared towards students who do not have French as a first language. There are currently almost 500,000 students enrolled in these programs across Canada (Government of Canada, 2020). While this program is implemented differently across the country, children are generally able to join sometime between senior kindergarten and seventh grade. Initially, most core subjects are taught in French, but as students get older, they receive an increasing amount of English instruction. French Immersion programs are also increasingly inclusive when it comes to multilingual students (Sinay et al., 2018). These students face challenges since they are learning all their languages in different contexts: their first language(s) at home, English in the community, and French in school. There are currently several studies working to capture the language and literacy skills of multilingual students in French Immersion.

Multilingual / bilingual education

The two languages are offered in equal measure. The different languages are also used as working language / language of instruction in other school subjects (such as math or science). On some days

or parts of days (for example the mornings) the lessons are taught in French and on other days or parts of days (for example the afternoons) they are taught in English. If students need to develop one of the two languages further (for example English), then the working language/ language of instruction and target language are the same (for example during the English days). Teachers often use the ‘Content and Language Integrated Learning’ (CLIL) approach. In addition there are usually specific language lessons as well to learn both languages.

(Early) foreign language education

The foreign language is the ‘target language’ and the lessons focus on learning this foreign / second language. For example: A couple of French lessons in the week, with young children usually through play; apart from this the working language / language of instruction is completely English.

Second language acquisition at school through immersion

The second language is learned at school through immersion: starting from kindergarten only the second language is learned (for example Dutch) and there is no attention for or education in the first language (for example Turkish). The first language is the home language, the second language is the school language, which for these students is both the target language as the working language / language of instruction, because they are still learning this language. In practice these children actually need an approach in the form of CLIL as well, for example a language-focused for non-language subjects.

better on a test for phonological awareness in English at that same measurement point. Later, at a second measurement moment (T2), these pupils also proved to be better on a test for word reading in English. However, the degree of success in French LSP at T1 did not appear to correlate with the score on phonological awareness in French at T1, nor was there an effect on word reading in French at T2. But students with better phonological awareness in English at T1 later turned out to be better at word reading on T2 in French. This seems to indicate a cross-linguistic transfer effect from English to French.

However, the opposite was also found: students who were not successful in LSP training in English later (at T2) performed worse on word reading in French, and showed signs of being at risk for developing reading problems in French. Yet this was not yet visible in the degree of LSP training in French or the measuring of phonological awareness in French at T1.

The recommendation for classroom practice is therefore: do not wait until the development of French is well under way but also consider the development of lexical specificity and phonological awareness in English to recognize possible problems with word reading in French in time.

This research shows the role of transfer between two languages as well: exposure to word pairs with minimal phonological differences stimulates phonological awareness, this supports word reading in the L1, but also word reading in the L2.

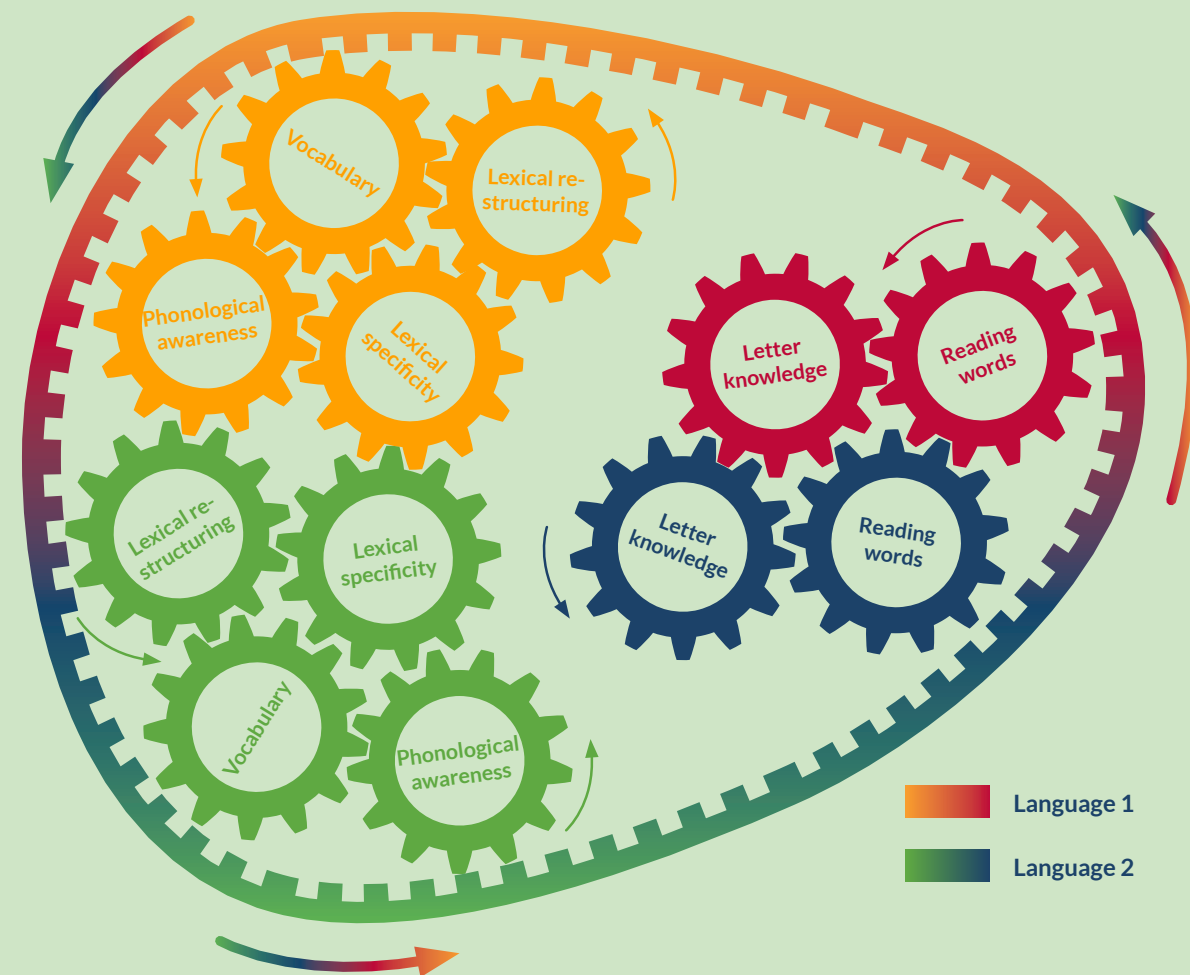


Figure 2
This figure portrays the development of phonological awareness and early literacy in multilingual children. The skills in one language influence those in the other language and vice versa.

"You can see that students often make a reference to the other language, for instance French, when they are asked in the English lesson to think of words that start with a specific sound. For example: when you ask them 'what words start with the sound 'g' (for instance 'girl') and they spontaneously come up with the word 'garçon'."

4 Recommendations for educational practice

All these research projects show the interaction between the development of vocabulary, lexical restructuring, lexical specificity, and phonological awareness. For students who follow bilingual education there is also an interaction between their L1 and L2 phonological skills and aspects of early literacy. Research shows that a transfer effect is possible from their phonological awareness in the L1 to that in their L2. A well-developed phonological awareness in the L1 therefore also has positive effects on aspects in the L2. On the other hand, insight in the development of both the L1 and the L2 can be important for early detection of problems in the language and reading development in both languages.

Paying attention in language education to the phonological structure of words and the transfer between both languages can be a step in creating an optimal learning environment for each student. Exposure to word pairs with minimal phonological contrast stimulates phonological awareness, which stimulates word reading in the L1 and subsequently literacy in the L2.

The following recommendations emerge from the studies discussed here:

- Training in lexical specificity is very effective. Especially in the context of multilingual education it helps stimulate early literacy in both languages. In the classroom setting (with the class or in small groups) form-focused vocabulary instruction can be a good way to practice lexical specificity (see also Chapter 5 in Jansen, 2017).
- Use test measures for lexical specificity in the strong language to detect the risk of reading problems in the second, weaker, language early. Do not wait until the second language has developed further and for problems to arise.
- Stimulate phonological awareness with a word learning task with minimal pairs or spend time paying attention to small differences in how words are pronounced.
- Examples of minimal pairs and words with different sound patterns: bear-pear, cat-hat
- Use word learning games that can be adjusted according to the language level and background of the student to stimulate vocabulary development and give reading instructions.
- Pay attention to the vocabulary of both the first as well as the second language of students. How can you use knowledge of one language in the other one? Which words are similar or not?
- Identify the phonological similarities and differences between the two languages. Which phonological skills from the first language support the development of the second language? What may be sticking points? Pay explicit attention to the sounds in the target language and the phonological structure of words. Word pairs with a phonetic distinction that exists in both languages are more easy to learn.

Keep reading

Would you like to read more about the studies mentioned here? Most of them are available online:

- Janssen, C. (2017). Phonological foundations of early literacy in first and second language learners. [Doctoral dissertation, Radboud University]. Radboud Repository. [Read here.](#)
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The examples of teachers from their own practice relate to the various aspects of early literacy and the relationships between them, in particular the coherence and/or influence of these aspects from one language to the other language. Furthermore, they are in line with the advice for multilingual teaching practice: make use of knowledge about differences and overlap in sound characteristics in words in both languages - this helps the bilingual student enormously.

The examples of practice in schools are provided by teachers at bilingual primary schools in the Netherlands and Canada.

Teachers in The Netherlands:

Harbour Bilingual: Jolene van Deurzen,
Groningse Schoolvereniging: Nellie Visser & Milena Stanojevic
Casaschool: Archanha Jayaraman

Teachers in Canada:

Conseil Scolaire Viamonde: Amy Schwegel
New Frontiers School Board Montreal: Danielle Ablett