

# Comparison of Screening Questionnaire Results Focusing on Environmental Influences when Monitoring the Development of Reading Literacy among Pupils in the 1st Grade of Primary School

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**Abstract:** The paper focuses on environmental influences in the development of reading literacy among primary school pupils. We build on data obtained through screening questionnaires for family and teachers, which were created and verified during the standardisation of the PorTex test battery (Porozumění textu/Reading Comprehension, Kucharská et al., 2021) aimed at reading and reading comprehension assessment in Grade 1 - Grade 5 pupils. We believe that environmental factors can have an impact on the development of reading literacy and it is possible to use these environmental factors during interventions for pupils with specific learning difficulties; they should therefore be included in diagnostics. In the following text, we will present the results of the experimental questionnaires created for the above-mentioned test battery, we will show the potential for using their outputs and how they relate to the pupils' results in tests of reading, reading comprehension and language awareness. We will also discuss the potential of these questionnaires in diagnostic and counselling practice.

**Key words:** Reading; Reading comprehension; Environmental factors; Parent questionnaire; Teacher questionnaire; Reading assessment; Intervention

## Environmental Factors in the Development of Reading Literacy in Pupils

According to Thor (2015), reading is a developmental task based on the demands of society, and although it is not yet an essential skill for a successful life within a society in many countries around the world, it is just the opposite in our culture. In view of this, reading and its development with the support of educational institutions is given considerable attention. Based on domestic and international empirical studies, it is evident that factors related to the attitude of family and school are also important factors for the development of reading literacy. In fact, a child learns to read mainly in two basic environments: within the family and at school. In the family, the child is introduced to books and activities related to reading while at school, they work on the targeted development of reading and writing. It turns out that even the teacher's approach as well as the chosen method can play a crucial role, especially for beginning readers and children with specific difficulties (cf. Gabal & Václavíková Helšová, 2003; Kucharská, 2014; Sénéchal & LeFevre, 2014).

When creating a test battery for reading diagnostics, we therefore decided to include screening tools for monitoring environmental factors, namely

a questionnaire for parents and a questionnaire for teachers. Our motivation was a comprehensive diagnosis based on the prevention-intervention model – hence a diagnosis serving as a basis for determining possible interventions in case a pupil shows deficits in reading or reading comprehension or simply needs support to develop their maximum potential in the given area. It was also about identifying whether the pupil's problems in reading and reading comprehension might be related to an unstimulating environment or a teacher's approach that does not meet the pupil's needs. When diagnostics are carried out by school counselling staff for children with reading difficulties, whatever their nature may be, we consider it important to assess the influence of the environment, which can be stimulating but can also have a negative effect on the development of the skills mentioned (Kucharská et al., 2021).

We first present the two experimental tools, their design process, administration, and then the results of the standardisation study. As mentioned above, given that they are complementary to diagnostic information, the questionnaires are conceived as **screening tools** to determine the level of risk in the family or the teacher's approach and to allow us to use them to collaborate in intervention or to look for new ways to support the pupil in compensating for reading comprehension problems. Thus, we assess

the risk level of the family and school environments, and consider whether their outcomes are complementary and whether one environment has the potential to compensate for the risk level of the other (Kucharská et al, 2021).

## **Parent Questionnaire – Screening Method**

The family is undoubtedly one of the most important factors that influence the development of a child. It contributes to the formation of a child's attitudes and values, which of course also applies to the field of education. The family is also the setting for the development of so-called pre-literacy skills, i.e. the skills necessary for the satisfactory development of reading, writing and arithmetic. As repeatedly found in research studies, the number of books in the household is one of the important criteria for assessing the socio-economic status of the family (Kucharská, 2014). Thus, the family can facilitate the child's start in the early years of schooling and, in the long term, guide the child's reading behaviour. That is why theories dealing with the influence of the family environment on a child's success in school appeared as early as in the 1970s, referring to the socio-cultural capital or socio-cultural handicap that a child carries with them from their family (Štech, 2000; Havlík & Kořa, 2011; Greger, Simonová, & Straková, 2015).

As Kucharská (2014) points out, the

family has a significant influence on the development of pre-reading skills and abilities through activities such as introducing the child to books and reading, making books available from an early age, by the child observing the parents reading, telling stories and discussing the stories they have read. The family may be one of the protective factors for literacy development but we can also find risk factors here in terms of disposition (e.g. the presence of specific learning disabilities in the family) or those stemming from an unstimulating environment. This is the basis for monitoring family influence in the context of screening family reading environments. The family reading environment, or Home Literacy Environment (HLE) in international literature, is to some extent related to the socio-economic status of the family but there is no direct causality; in addition, the value system of the family, especially their attitude towards education, enters into the picture. For our purposes, we consider this to be an umbrella term for all notions of family environment and family activities related to reading. We can divide it into two basic areas: conditions for reading (availability of books, parents' reading pattern, shared reading as a leisure activity); the second area is reading practices in the family, where we focus on targeted parental activity for reading development (e.g. learning letters, connecting pictures with letters or words). Sénéchal and LeFevre (2002,

2014) bring a similar approach, distinguishing factors that support the development of a child's reading literacy and identifying the key factors to be related to the child's personality and cognitive abilities as well as environmental factors, where the family plays a crucial role, especially in the preschool period. Based on their longitudinal research, they developed a model of the family literacy environment comprising formal and informal family literacy development activities. They consider all activities where parents purposefully develop their child's literacy skills to be formal. On the other hand, informal activities are based on the frequency of spontaneous activities where reading or just book-related activities (looking at pictures, talking about stories, etc.) are involved. According to them, the frequency and proportion of these activities in the family plays a crucial role in literacy development of beginning readers, i.e. children from preschool age to the third year of compulsory schooling, when the child becomes an independent reader.

Korat and her colleagues reach similar conclusions with Arabic-speaking children. Using a study of 109 children, they show that family background is a significant factor in a child's reading performance in 1st grade. Again, the socio-economic status of the family is reflected here (see above), but surprisingly, the research in question did not show a significant relationship between

the child's performance and the mother's efforts to interpret the meanings of the text verbally (Korat et al., 2013). Thus, the results of the selected research suggest both the importance of the family reading environment and the possible intervention potential for developing reading development and literacy skills in general. The importance of the family reading environment is also underlined especially by intervention studies targeting the prevention of literacy development difficulties. Niklas and Schneider (2013) conducted research with 921 children and their families. Their results highlight the fact that children from families applying literacy development activities (a researcher-led intervention) showed better language competence and phonological skills. Intervention in literacy development also significantly helped them in overcoming socio-cultural handicaps.

It follows from the above that the family reading environment is one of the important factors in the development of a child's reading abilities and greatly influences the child's relationship with reading and their achievement in it. Nevertheless, it must be understood as one component of a comprehensive view of the child's reading development; as Carreteiro points out (Carreteiro et al., 2015), some authors consider the importance of the family to be overestimated - it cannot be removed from the context of other influences such as the

child's cognitive and personality characteristics. The importance of the family environment is greatest in the early stages of literacy development, which is also why most of the research cited above focuses on the period before and at the beginning of compulsory schooling.

### **Description, Administration and Evaluation of the Questionnaire**

The questionnaire for parents included in the PorTex test battery (Porozumění textu/Reading Comprehension, Kucharová et al., 2021) was constructed on the basis of analyses of the above-mentioned research on the family reading environment, the experience from the empirical study conducted by the Czech Science Foundation (GACR), No.13-20678 S: Reading Comprehension - Typical Development and its Risks (2013-2015), and last but not least, by screening tools used abroad, such as the Home Literacy Environment Checklist (Burgess, Hecht, & Lonigan, 2002). The questionnaire comes in two versions, the first one is designed for first graders (version A), as we assumed that in the first year of primary school, family activities are focused on the development of early reading and differ from higher grades. The second is designed for parents of pupils in Grades 2-5 (version B). Both versions of the questionnaire contain 20 items divided into two parts that target the conditions

for reading and reading practices in the family (see above). In the preliminary version, the questionnaire also included items on demographic data (education, parents' occupation) but since these questions are normally included in anamnestic questionnaires used in school counselling centres and school counselling offices, we did not consider it necessary to include them in the questionnaire.

The questionnaire is designed so that parents can fill it in independently before or during the child's examination, and it can be sent electronically. It is of course possible for more than one family member to complete the questionnaire (e.g. alternating custody). After receiving brief information, parents follow the instructions on the answer sheet: *"DEAR PARENTS, WE WOULD LIKE YOU TO COMPLETE A QUESTIONNAIRE FOCUSING ON THE ROLE READING PLAYS IN YOUR FAMILY. PLEASE SELECT ONLY ONE ANSWER PER QUESTION, THANK YOU!"*

Scores are recorded on an answer sheet where the total score determines the degree of potential or risk of the family environment for further development of the pupil's reading abilities and skills. In the case of a high-risk family environment, we consider whether the teacher's approach can compensate to some extent for areas of concern, considering recommendations for both the school and the family.

## Teacher Questionnaire – Screening Method

In the Czech Republic as well as abroad, researchers emphasise the significant role of teaching quality, the teacher's didactic practices and their ability to reflect the needs of individual pupils, particularly at the outset of the educational journey. Currently, the choice of teaching methods or didactic material is the responsibility of each teacher (or potentially subject committees or school management). However, while there are many positives to this practice (possibility of an individualised approach, freedom and flexibility in the choice of textbooks, worksheets), this also sometimes places too many demands on the teacher, who may lack methodological or material support in everyday situations at school. Although there is a visible effort of state and non-state institutions to provide such support (see, for example, the Methodological Portal [rvp.cz](http://rvp.cz); the National Pedagogical Institute; the National Pedagogical Museum and Library of J. A. Komenský or CT Edu), as pointed out by Wildová and Vykoukalová (2013) or Klapwijk (2012), it is not systematically addressed and depends on the activity and personality of the teacher. It may seem that a teacher questionnaire is superfluous given that it is common practice in the Czech guidance system for schools to provide a school questionnaire as a basis for diagnosing reading or specific learning disabilities.

However, if we analyse standard school questionnaires, we find that they mainly focus on describing the difficulties of the pupil. This is perfectly fine but it does not cover cases where the pupil's reading difficulties are related to the fact that the method of teaching reading is not suitable for the pupil or the approaches and strategies chosen by the teacher do not correspond to the pupil's needs.

International studies analysing reading development and reading comprehension support have attempted to show specific reading strategies that can be used in a school or family setting to facilitate reading development (Block & Duffy, 2008; Connor et al., 2005). Guthrie and colleagues also point out that certain strategies can increase pupils' engagement with reading, motivation to understand texts and activate them in the learning process (Guthrie et al., 2006; Guthrie, Wigfield & You in Christenson et al. 2012). Tonnessen and Uppstad (2015) then show that the emphasis on specific methods of early reading instruction and their application in schools is probably greatest in the United States. In Scandinavia (where the authors come from), as in the Czech Republic, early reading instruction is typically categorised into two basic methods: the analytic-synthetic method (phonics) and the global reading method (referred to in our context as the genetic method). While these approaches entail their own didactic procedures, teachers have the autonomy to

choose specific instructional approaches within these frameworks. In their view, it is often not the method of teaching reading that is decisive but rather what exactly the teacher does with the children, as the methods are interpreted and practiced differently. Thus, in their view, it is the specific techniques and strategies that are decisive. They even believe that methods and practices in reading instruction should be chosen according to the needs of the pupil (especially for pupils showing difficulties in reading development).

It follows from the above that the teacher's approach, their ways of working and their solutions to a pupil's learning problems can be an environmental factor influencing the development of reading, reading comprehension and the pupil's attitude towards reading. Therefore, when creating the PorTex diagnostic battery (Porozumění textu/ Reading Comprehension, Kucharská et al., 2021), we found it necessary to include a questionnaire for teachers reflecting their approach and specific strategies used in teaching reading and developing reading comprehension. We drew on the findings of the Czech Science Foundation research, No. 13-20678S: Reading Comprehension - Typical Development and its Risks (2013-2015), where we asked teachers what specific strategies, methods and techniques they use most often when teaching and advancing reading and reading comprehensi-

on (Kucharská, 2015). We then selected the most frequent strategies and compared them with empirical findings targeting strategies and methods that enhance the development of reading and reading comprehension (e.g., Reynolds & Symons, 2001). This then resulted in a 20-item questionnaire where teachers expressed their attitudes towards statements regarding approaches and methods in reading instruction based on a 4-point Likert scale (Porozumění textu/ Reading Comprehension, Kucharská et al., 2021). All the items were subjected to statistical analysis, the interrelationship of the items was reflected and the scoring method of each item was revised according to the results.

### **Description, Administration and Evaluation of the Questionnaire**

The aim was to design the questionnaire in such a way that teachers could fill it in independently before or after the child's examination, according to the needs of the specialist, and it can also be sent electronically. The administration is therefore simple; after reading the introductory information the respondent ticks their answer based on the instruction: *"PLEASE CHOOSE TO WHAT EXTENT DOES EACH OF THE FOLLOWING STATEMENTS REFLECT THE REALITY OF YOUR TEACHING PRACTICE, TO WHAT EXTENT DO YOU AGREE WITH THEM.*

*PLEASE TRY TO CHOOSE ONE ANSWER AT A TIME AND ANSWER ALL QUESTIONS, EVEN IF YOU FEEL THAT ONE FOLLOWS FROM ANOTHER (INDICATE WITH A CROSS IN THE TABLE). THANK YOU!*" The administrator evaluates the questionnaire on the basis of the record sheet template, the total score is obtained by adding up the points obtained in each item. Based on the total score, we can determine whether the teacher's approach is more or less supportive of reading development (Kucharska et al., 2021). Another option available to the diagnostician is a qualitative evaluation of the questionnaire. **For this reason, the statements have been arranged into groups where we can observe the following aspects:**

- Approaches that support reading activities at school and at home (items 3, 4, 6, 7, 8,9,10)
- Approaches to developing reading comprehension (items 11, 12, 14, 15, 16)
- Teacher's approaches if reading difficulties are present in the pupil (items 18,19,20)
- Approaches that do not support reading development and do not address reading difficulties (items 5, 13, 17)

For pupils in the early stages of reading development (Grades 1-3), we also include the method of reading instruction in the analysis to ensure that the pupil's difficulties are not the

result of an inappropriate method (which can be very individual). After the evaluation, we also look at the results of the questionnaire filled in by the parents, and consider whether we can use any of the environmental influences (school, family) in the intervention in the case of the pupil, which we reflect again in the conclusions of the examination and recommendations.

## Research Sample

### Parent Questionnaire

In the standardisation research, parent questionnaires were distributed to the families of all pupils included in the research. Parents received the questionnaire from the researcher with an envelope to be used to return the completed questionnaire. Table 1 shows the number of parent questionnaires analysed. Thus, overall, questionnaires were obtained from approximately 83% of parent respondents, with the highest return rate in 3rd Grade and the lowest in the 2nd Grade.

### Teacher Questionnaire

In the standardisation research, 127 teachers in the participating primary schools completed the *Teacher Questionnaire* (see below for detailed characteristics of the sample). Although this does not seem like a large number, it should

**Table 1.** The numbers of parent questionnaires whose results were reflected in the development of the questionnaire evaluation documents. Their proportion of the total number of pupils surveyed in a given year is in brackets

Grade	T1	T3	TOTAL*
1st Grade	153	39	192 (78 %)
2nd Grade	156	-	156 (73 %)
3rd Grade	198	-	198 (89 %)
4th Grade	173	-	173 (88 %)
5th Grade	134	-	134 (86 %)
TOTAL			853 (83 %)

\* *The Parent Questionnaire was administered only in the first stage and in the third stage when the sample of 1st Grade pupils was completed*

**Table 2.** Sample distribution by education

Highest education attained	N
Other	1
Secondary Vocational School	6
Higher Vocational School	2
University - Bachelor's degree	9
University - Mgr. and higher	108
no data	1
Total	127

be noted that a total of 46 schools were involved in the standardisation study. Only 4 schools did not return the teacher questionnaires. The total number therefore reflects the fact that the corresponding teacher taught in several of the participating classes, for example. There were also some schools where

questionnaires were returned by teachers who were not currently teaching the children involved in the study. Their questionnaires were used for descriptive statistical analyses, and only the questionnaires of the participating pupils were used for correlational analyses, which were consistently paired with specific

**Table 3.** Sample description by length of experience

Length of experience	N
< 2 years	4
2-5 years	20
5-10 years	22
> 10 years	80
no data	1
Total	127

**Table 4.** Reliability Parent Questionnaire - Overall Score

Grade	T1 Cronbach's Alpha (Total score)
1	0.534
2	0.755
3	0.713
4	0.724
5	0.800

respondents (Kucharská et al., 2021). The research sample included a total of 108 females, 3 males, 16 respondents did not indicate a gender.

## Results of the Questionnaires in the Standardisation Study

As part of the standardisation study, the results of the two questionnaires were subjected to statistical analyses, item analysis was performed and the items were either revised or the item scores (reverse Likert scale scores) were adjusted to ensure correct item place-

ment. Reliability of both questionnaires reached a satisfactory level. For the *Teacher Questionnaire*, reliability was determined based on a total score of 0.946 (Cronbach's alpha), and for the *Parent Questionnaire*, reliability of the test for each grade ranged from 0.534 to 0.800 (see Table 4).

Descriptive analyses of the *Parent Questionnaire* showed that there were no significant differences between grades (see Table 5), so we decided to proceed with further analyses in aggregate. We were intrigued by the fact that all grade groups (except Grade 5) contained questionnaires with a score of 0 in the first

**Table 5.** Descriptive statistics of the Parent Questionnaire (total score, score of Part A – reading environment in the family, score of Part B – family reading-related activities)

		Total score	S1 – Part A	S2 – Part B
1st Grade	Average	28.50	7.73	20.77
	SD	4.187	1.575	3.378
	Minimum	15	0	10
	Maximum	37	10	27
2nd Grade	Average	27.96	7.63	20.33
	SD	5.531	1.570	4.695
	Minimum	7	0	4
	Maximum	39	10	30
3rd Grade	Average	28.39	7.89	20.51
	SD	5.065	1.560	4.311
	Minimum	15	0	9
	Maximum	38	10	29
4th Grade	Average	28.34	7.83	20.51
	SD	5.556	1.541	4.512
	Minimum	6	0	0
	Maximum	39	10	30
5th Grade	Average	27.18	7.66	19.52
	SD	6.108	5.045	1.650
	Minimum	6	3	3
	Maximum	39	10	30

section, which focused on the family's reading environment, and this occurred more than once in each of the grade groups. Based on the results of the standardisation study, critical values were established to determine the risk in

reading development on the part of the family. The maximum score on the *Parent Questionnaire* was 40, and the critical value was 24.

In Table 6, we present descriptive statistics of the results of the *Teacher Qu-*

**Table 6.** Descriptive statistics of the Teacher Questionnaire with regard to teaching methods

	N	Average of total score	Standard deviation
Phonics method	32	41.06	12.313
Genetic method	85	36.58	14.960

estionnaire, where we reflect the results according to the two most represented teaching methods. Teachers applying the genetic method appear to have scored higher on average on the questionnaire but this is not a statistically significant difference and, moreover, as can be seen from the value of the standard deviations for the two methods, the teachers' results were very heterogeneous. Based on the evaluation, the critical threshold for judging a teacher's approach to be unsatisfactory for a pupil was set at 30 points, while the maximum score that teachers could reach was 60 points. It should be noted that the fact that a teacher's approach may increase the risk of difficulties in developing reading and reading comprehension does not mean that it cannot be satisfactory for other pupils. We recommend looking at the qualitative analysis to see in which area the teacher scored lowest to determine how this corresponds to the pupil's difficulties.

### Comparison of Questionnaire Results with Pupils' Results in Reading and Language Competency Tests

In analysing the results of the questionnaires, we focused on observing the relationship between the questionnaires and the individual battery tests. We were particularly interested in whether its results were related to the reading and comprehension tests that form the basis of the battery.

Statistical analyses showed that in 1st Grade, it was not possible to detect a relationship between the *Parent Questionnaire* and some reading comprehension tests. No statistically significant relationship was found for the listening comprehension tests and no association was found for the reading aloud and silent reading tests because one of the variables was held constant. Then, from the 2nd Grade onwards, a statistically significant relationship was confirmed using Pearson's correlation coefficient between the total questionnaire score

**Table 7.** Relationship between the Parent/Teacher Questionnaire (total score) and comprehension tests (listening, reading aloud, silent reading (r))

	Total score Parent Questionnaire	Total score Teacher Questionnaire
Reading comprehension		
The Forest Elves	0.012	0.056
The Fidgety Little Star	0.166**	0.060
How to Mushroom	0.157**	-0.096*
Comprehension when reading aloud		
Preparing for the Journey	-	0.037
Feeding Rabbits	0.143**	0.002
Ice-skating	0.157**	-0.106**
Comprehension when silent reading		
The Snowman	-	0.167
Big Friends	0.263**	-0.020
A Trip to Kořenov	0.190**	-0.072
Decoding		
Reading pseudowords	-0.052	0.219**
Reading words	-0.053	0.308**

Statistically significant values at level: \*  $p < 0.05$ ; \*\*  $p < 0.01$

and all the reading comprehension tests except for the *Word Reading and Nonword Reading Tests* (see Table 5). As can be seen from the table, the situation was more or less reversed for the *Teacher Questionnaire*. There was a correlation detected between the *Teacher Questionnaire* and the decoding tests (*word reading and nonword reading*); contrary to the *Parent Questionnaire*, no significant relationship was found between the Teacher

Questionnaire and the comprehension tests and for some tests, such as *How to Mushroom*, *Ice-skating*, there was even a negative correlation detected. Nevertheless, it can be concluded that for both questionnaires a correlation was found between their results and selected reading comprehension tests, although for the *Teacher Questionnaire*, the relationship was found to be stronger with the decoding tests while for the *Parent*

**Table 8.** Relationship between Parent/Teacher Questionnaire (total score) and language competency tests (r)

	Total score Parent Questionnaire	Total score Teacher Questionnaire
Repeating Nonwords	0.111**	0.070**
Language Awareness	0.137**	0.235**
Phonemic Awareness	0.060	0.272**

Statistically significant values at level: \*\*  $p < 0.01$

*Questionnaire*, it was with the reading comprehension tests. We can therefore conclude that the family environment, the richness of stimuli in it, develops in children abilities important for reading comprehension, which is also supported by other studies (e.g. Sénéchal and LeFevre, 2002; 2014).

We also looked at the relationship between the questionnaires and the language competency tests. Here it is evident that the significance of the correlations is greater. As we can see with the *Parent Questionnaire*, we did not find a statistically significant relationship with phonemic awareness but in the tests of nonword repetition and language awareness the correlation is clear. The language competency tests showed a stronger correlation with the *Teacher Questionnaire*, with both the *Phonemic Awareness* and *nonword Repetition* tests showing statistically significant values. An even stronger correlation is then observed with the *Language Awareness*

*Test* in all its parts. Thus, the teacher's approach is related to the development of the pupil's morpho-syntactic skills, which also affect their reading comprehension, although a direct relationship between the results of the questionnaires and comprehension has not been demonstrated.

There was no statistically significant correlation between the *Parent Questionnaire* and the *Teacher Questionnaire* (-0.034), as suggested by the above results of the relationships with the individual reading and language competency tests. We believe that this can be explained, for example, by the fact that parent and teacher attitudes may differ significantly, meaning there may be two independent settings present if there is no regular communication between teacher and parents and if the teacher does not guide the parents on how to proceed in developing their child's reading. During the standardisation study, there was also an interesting finding that more than 50%

of parents were unable to aptly identify the method of reading instruction being applied with their child. This supports our conclusion of relatively independent environments that, while both influence the child, are often not sufficiently connected.

## Discussion

The subject of the research study concerns screening questionnaires focusing on environmental factors affecting reading development and reading comprehension in the 1st Grade of primary school. Our aim was to show how the results of the *Parent Questionnaire* and *Teacher Questionnaire* related to pupils' performance on tests of reading, reading comprehension and language competence and how this can be used to set up intervention procedures and recommendations for the school targeting the compensation of pupils' problems.

We are drawing on the results of studies showing that family socio-economic status is indeed one factor to be taken into account (Chiu and McBride-Chang, 2010 or Korat et al., 2013) since children from low socio-economic status families perform lower in reading on benchmark tests (see PISA, 2000, 2003 and 2006). On the other hand, we have recently encountered more and more studies emphasising the necessity of identifying the child's needs and guiding the family in the development of reading and reading

comprehension. Empirical studies have highlighted approaches and strategies that parents can adopt to effectively support their child in developing reading. Sénéchal and LeFevre (2002) stress the importance of the family environment from preschool to approximately Grade 3 in primary school. Baker (2014) points out that the frequency and type of reading activities are important and have a significant impact on a child's performance. This is supported by Saint-Laurent and Giasson (2005) who additionally report that when parents are purposefully guided and adhere to a reading development intervention program, children's performance is significantly better than that of children in the experimental group where the program was not included.

For the time being, our standardisation study has been interested in distinguishing between a supportive reading environment and family reading activities so that we are able to determine whether the family is more of a protective factor or risk factor. We then correlated the questionnaire results reflecting the family reading environment with pupils' performance on reading and language competency tests, and found that this environment showed a significant relationship with the reading comprehension tests and the *Language Awareness Test* in particular. It therefore seems that family activities such as reading together, talking and asking questions about the

text read seem to promote the development of reading comprehension. Our results therefore support the findings that there is a relationship between a child's reading level and their family environment, although a statistically significant relationship was not detected with the decoding tests. Thus, the findings of the *Parent Questionnaire* can be used for an overall assessment of the pupil's situation and for the development of support measures for the school and, in case of severe problems, a family support plan.

For the *Teacher Questionnaire*, it is important to note that we can see a significant relationship with the decoding and language competency tests. If we go by what Špačková (2016) summarises, this conclusion supports the so-called "phonological pathway of decoding". In the *Language Awareness Test*, we can further observe the impact of the teacher's approach on the development of morpho-syntactic skills, which also affect reading comprehension long term, although a direct relationship between the questionnaire results and comprehension has not been demonstrated. Our study's contribution also lies in the fact that it focuses on specific approaches and strategies employed by the teacher in teaching reading, which is not often reflected in our setting where only the method used by the teacher is usually considered. Our results, on the other hand, support the findings of Tonnessen and Uppstad (2015), who show that the method per

se is not that important (moreover, not every method suits every pupil); it is the specific activities and strategies represented in the teacher's approach that they consider more important.

The results of the study show that the findings of environmental screening questionnaires are related to pupil performance on tests of reading and language competency. While it cannot be concluded that the results are unambiguous and statistically significant for all tests, they support our hypothesis that they are complementary to comprehensive diagnostic tests and should be interpreted together. If we include them in a reading comprehension diagnostic assessment, it may help us not only to explain a pupil's difficulties but also to seek effective procedures to compensate for those difficulties. Both environments can function as a protective or risk factor in the development of a pupil's reading skills.

Finally, we would like to mention that the next step in our research on environmental factors is the focus on intervention. By working with professionals using our PorTex test battery, we would like to identify effective compensatory and intervention strategies in the family and at school based on the approaches validated by our questionnaires.

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