

The Level of Reading Literacy in Pupils at the End of the First Grade of Elementary School

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Abstract: The beginning of school attendance is an important landmark in the life of any child. Starting school changes the child's previous way of life, social position, and activities. The child learns to be a schoolchild, and by means of appropriate teaching methods moves from the area of games to the area of learning and acquires new competencies. Reading, which in principle is understanding the characters of written speech, whether printed or handwritten, is one of the two components of human literacy. In the process of learning, these two components act jointly on a principle that could be simply described as a process from the meaning to the character, and from the character to the meaning. A child who is writing moves the meaning directly to the characters (encoding); a child who is reading picks the meaning from these characters (decoding). These cognitive abilities need to be learned. The process of reading and writing is a complex cognitive process that consists of many sub-processes, which gradually become automatic during the process of learning.

This fact inspired us to perform a deeper analysis to identify which reading competences pupils have after one year of study at elementary school. In the research, the main objective of which was to identify and evaluate the level of reading literacy in children at the end of the first grade of elementary school, the authors considered the fact that in Czech schools, the training of elementary reading uses the principles of three basic methods: analytical-synthetic, genetic, and Sfumato blended reading. The research method was a non-standardized achievement test which focused on various components of reading literacy. The research involved a total of 341 children, of whom 287 were taught using the analytical-synthetic method, 24 by the genetic method, and 30 by the Sfumato blended reading method. The data was interpreted with respect to the research variables; the results were discussed in the context of education in elementary schools.

Key words: reading literacy; analytical-synthetic method, genetic method, Sfumato - blended reading method; elementary school; non-standardized achievement test

Introduction

In addition to speech, reading and writing are the main information channels in school, as well as in everyday life. The ability to read and write assumes that the child understands written text and transforms what is heard into a written form. The need for communication is deeply embedded in the human psyche and its failure or suppression leads to serious disorders in mental life and social relationships.

Children try to read long before they start school. Some letters and words are already picked up at preschool age, at kindergarten or in the family. Some children even read whole sentences before they start school.

Education according to the Framework Educational Programme for Elementary Education focuses on the development of the key competences – a set of knowledge, skills, abilities, attitudes, and values which are important for the personal development of an individual and for the individual's participation in society. The key competences go beyond school subjects and are considered to be both the result and the objective of elementary education. This objective can only be achieved if children's capacities to learn, solve problems, communicate, cooperate, act democratically, and work intently are developed and shaped in all school subjects (RVP ZV, 2017). A closer look at specific skills as defined by individual key competences shows that

a prerequisite for their attainment is to acquire specific reading skills. For example, the learning competence requires that at the end of elementary education children should be capable of effective learning by means of selecting appropriate learning strategies, searching for and classifying information, and using this information in an effective way in the learning process, creative activities, and practical life on the basis of the understanding, linking, and systemization of such information. The problem-solving competence requires children to be able to search for information relevant to problem solving, think in a critical way, and be able to defend their opinions. The communication competence assumes that children should understand various types of texts, reflect on them, and use them for their own development and active engagement in social events (RVP ZV, 2017). A closer analysis suggests that the attainment of the key competences is subject to a high level of reading literacy. As a result, reading literacy becomes both the content and the objective of all areas of education. Therefore, teaching reading comprehension must also be included in other subjects than just reading and writing (first stage of elementary school) and literature (second stage of elementary school). Should reading and reading literacy become a functional instrument in acquiring knowledge and skills in various fields of human activity, in all school-based areas of education children need to work with

different types of texts (continuous and discontinuous) used in various situations in which reading is used for different purposes – personal, educational, occupational, or public.

In order to achieve objectives and expected outcomes in the educational process, the teacher must choose appropriate learning strategies. Modern educational science, especially after the introduction of SEPs, considers learning strategies from a comprehensive perspective and strives for them to attain a stable position in the educational process.

The learning strategy is *“a sequence of learning activities thoughtfully arranged to achieve the learning objective. Using the learning strategy the learner decides which skills to use and in what order. The learning strategies are a subset of a learning style, which has a form of a learning meta-strategy”* (Průcha, Walterová, & Mareš, 2008, p. 230).

The teacher’s methodological approach is part of the concept of teaching. History suggests that teaching methods have always changed according to the period in which education was realized. Adequate procedures by means of which teachers achieved higher educational outcomes in their students have always been selected according to the current conditions in education. To achieve educational objectives, optimal and effective teaching methods must be selected. According to Skalková (2008, p. 181), the teaching method is “a way of deliberate arrangement of teachers’

and learners’ activities to achieve the set goals.”

At present, teachers have a variety of teaching methods that represent the procedural aspects of teaching. The teacher uses the teaching methods to adapt the internal conditions of the learners’ cognitive processes, which are then encouraged and directed.

Initial reading and writing is taught by means of several teaching methods. In the past there were many more teaching methods, but through practical experience only those that were productive continued to be used. By means of the currently used teaching methods, children in the first grade learn to read and write and acquire basic awareness about a text that is read and written. Reading and writing with comprehension means that the basics of reading and writing literacy are developed at a required level appropriate to the age of the learners and their reading and writing experience.

The analytical-synthetic method is the most frequent teaching method used for initial reading and writing. This method is still being modified and is no longer used in its original form as designed by Ushinski in 1951. The basic principle of this method is the learner’s speaking. We speak, write, and express ourselves in sentences. A sentence consists of words. A word consists of sounds and a written sound is a letter. We move from the whole to its parts. The smallest elements are then used to build larger units – syllables, syllables into words and

sentences. According to the holistic language development of the learner in the area of elementary reading and writing, the analytical-synthetic method teaches reading and writing in parallel.

In the first grade the analytical-synthetic method of teaching reading is classified into three stages: language preparation of children for reading, a syllable-analytical way of reading, and fluent reading of words, sentences, and text.

The genetic method was already being used in Czech schools between 1913 and 1948. The founder of this method was Josef Kožíšek, who in his textbook entitled *Poupata* (1927) described teaching by means of the genetic or recording method. The method is based on an assumption that reading can only be trained by writing. Uppercase block letters are used because they consist of horizontal, vertical, and oblique lines and a small number of loops. The author assumed that children would record text using capital block letters and pictures. According to the genetic method, children should learn to write using an uppercase block alphabet. This method had many supporters but also opponents. Kožíšek claimed that writing was not an end in itself but was a means of acquiring the skill of reading. When a child writes words, they are first decomposed by hearing and individual sounds are distinguished and arranged in order.

The didactic approach of this method is as follows: first write, then read. From

the very beginning, children write whole sentences. They use uppercase block letters, uppercase block letters with a dot are used to indicate names, and lines are substituted for verbs. Children frequently record text through pictures. Only after a well-trained auditory analysis does a child learn about the written shapes of the letters.

This concept was also used by Jarmila Wagnerová, who in 1995–1996 developed a project by combining the genetic and global methods designed by Václav Přihoda, which she used to teach children to read and write. She called this method genetic and at that time it was the only alternative to the syllabification analytical-synthetic method. The author issued a textbook with a methodological guide and a reading book with fairy tales in which she described the current methodology for the training of writing using the genetic method. The training of initial reading (and writing) by means of the genetic method is classified into three consecutive stages. The objective of the first stage (preparatory stage) is mainly to develop children's positive motivation for reading, while during the second stage children already begin to use textbooks and workbooks. They adopt basic reading habits; they still use uppercase block letters, which they learn to read and write. During this stage, children do not spell out words but rather try to read through their vision. After being trained in all the uppercase block letters, children are introduced to

lowercase block graphemes, which they distinguish visually and remember, but do not write. The training of lowercase block letters is very quick. In about two weeks children are able to distinguish all the letters. Experienced teachers say that by the end of February children are able to recognize all the block letters. In the third and last stage, children start to write cursive letters according to the joined-up linear handwriting model. During this period children learn uppercase and lowercase handwriting. They eventually learn the graphemes and phonemes in both their block and cursive forms. In the third stage of training, children read almost fluently and with comprehension, and their reading skills and reading and writing literacy are developed. Children's reading gradually develops as they are able to read multiple words at once.

Currently, a new method for teaching elementary reading and writing has emerged, which is the blended reading method, also known as the *Sfumato* method. The author and promoter of the *Sfumato* elementary reading method is Mária Navrátilová. She is a teacher with over thirty years of experience in education. In a practical environment, she started to test her own methods, developed as a piano teacher and teacher of singing, including the *Sfumato* blended reading method. The blended reading method facilitated the transfer of sensory information and its processing. The sense organs involved in the process of learning are arranged in a precise se-

quence, VISION – VOICE – HEARING. While reading, the child holds a sound and it is only after the following sound is identified that it is combined with the previous one. This is called long exposition and correct intonation. The deduction of each letter and sound is preceded by thorough voice training with appropriate strength, length, and colour, involving vision and hearing. Children identify letters by means of all their senses. The next stage is the synthesis of two sounds (letters), for example, SO – LA – MO, where children consider each combination a different word (SO as sova, LA as lavice, etc.) Another step is the synthesis of multiple sounds (letters) that already have a meaning, for example, SOS – LOS, LASO, SENO, etc.) The last step is reading from an alphabet book; children read meaningful texts with an emphasis on the intonation of words and sentences (for more about teaching methods see Fasnerová, 2018).

Methodology

The text above emphasized the priority of contemporary education, which is to teach children the key competences, i.e. a set of knowledge and skills applicable in their practical life. The acquisition of the key competences is conditioned by a high level of reading literacy, which needs to be considered as a precondition for successful education. In the context of the innovative changes in the educational process implemented in order

to increase the level of reading literacy, which are based on the competence principle defined in the Framework Educational Programme for Elementary Education, the research study focused on determining the level of reading literacy in children in the first grade of elementary school.

Objective of the research study

In the research, the main objective of which was to identify and assess the level of reading literacy in children at the end of the first grade of elementary school, the authors considered the fact that in Czech schools, the training of elementary reading uses the principles of three basic methods: analytical-synthetic, genetic, and Sfumato blended reading (Fasnerová, 2018)

Research problem and hypotheses

To verify the objective of the research study, the following research question was formulated. *Does the teaching method used for elementary reading affect the level of reading literacy at the end of the first grade of elementary school?* This research question was used to formulate a hypothesis that characterizes the relationship between the two groups of respondents.

In the level of reading literacy at the end of the first grade of elementary school,

there is a statistically significant difference between the results of the children in the groups that were tested.

The null hypothesis was operationalized to determine whether there was a difference between the groups and whether the difference was significant.

H0: There is no difference between the results of the children in the groups that were tested in terms of the level of reading literacy at the end of the first grade of elementary school.

HA: There is a statistically significant difference between the results of the children in the groups that were tested in terms of the level of reading literacy at the end of the first grade of elementary school.

The testing of the hypotheses was divided into three sub-groups, and the following data was used:

1. children taught by means of the analytical-synthetic method (AS group)/ children taught by means of the genetic method (G group);
2. children taught by means of the analytical-synthetic method (AS group)/ children taught by means of the Sfumato blended reading method (SF group);
3. children taught by means of the genetic method (G group)/ children taught by means of the Sfumato blended reading method (SF group).

The null hypothesis was tested using the *t*-test criterion. The calculated value of

the *t*-test criterion was then compared with the critical value of the *t*-test criterion for the selected level of statistical significance and the respective number of degrees of freedom.

Research sample

The research was carried out in June 2018 in the first grades of elementary schools in the Olomouc region (Czech Republic). The research involved a total of 341 children, of whom 287 were taught using the analytical-synthetic method, 24 by the genetic method, and 30 by the Sfumato blended reading method. The authors are aware of the disproportion between the numbers of children in these groups, but this results from the fact that the analytical-synthetic method is the primary method used for teaching elementary reading in elementary schools in the Czech Republic, while the other two methods are considered as alternatives. The identification of age and gender variables was not the subject of the research, so these were not even investigated. The only indicator was the inclusion of the pupil in the first grade of elementary school.

Research methods

The main objective of the research was achieved by means of a quantitative research approach using an achievement test of the authors' own design. The term "achievement test" is defined in different

ways by different authors, but all definitions agree that this is a test that focuses on the objective assessment of mastery of the learning content by a specific group of persons (Chráska, 2007). The pupils were presented with a coherent text that was motivated by a fairy-tale story, which was then followed by 11 questions or tasks (open and closed items) mapping both implicit and explicit text comprehension. The test was submitted to the pupils in written form and was completed in 45 minutes.

By means of the measurement tool – the achievement test – the authors compared all three groups in terms of the dependent variable indicator and observed the effect of the method used for teaching reading in the first grade of elementary school on the level of reading literacy in the children at the end of the first grade. The results were qualitatively processed and statistically analysed using the Student's *t*-test. To gain a better understanding of the conclusions of the statistical testing, a qualitative analysis of the responses to individual test items was performed, and percentages were used to identify possible causes of children's success or failure in both the groups that were monitored.

Data analysis

As already mentioned, the main research hypothesis was verified by testing three partial operationalized hypotheses. The data described below was identified.

Table 1. Basic data for testing of sub-hypothesis A

	Number of children (n)	Average number of points (\bar{x})
G group	24	32.63
AS group	287	29.50

Table 2. Basic data for testing of sub-hypothesis B

	Number of children (n)	Average number of points (\bar{x})
SF group	30	30.77
AS group	287	29.50

A) Children taught by means of the analytical-synthetic method (AS group) and children taught by means of the genetic method (G group):

Sub-hypothesis A: *In terms of the level of reading literacy at the end of the first grade of elementary school, there is a statistically significant difference between the results of the children in the AS group and the G group.*

Conclusion: The difference in the level of reading literacy at the end of the first grade between children taught by means of the analytical-synthetic method and genetic method: the calculated value of the test criterion $t = 2.17$ was compared with the critical value of the t -test criterion for the selected level of statistical significance (0.05) and the respective number of degrees of freedom $f = 309$. The critical value of the test criterion is lower than the calculated value; therefore, the null hypothesis is rejected with a confidence level of 95%. There

is a statistically significant difference between the results of the children in the groups that were tested in terms of the level of reading literacy at the end of the first grade.

B) Children taught by means of the analytical-synthetic method (AS group) and children taught by means of the Sfumato blended reading method (SF group):

Sub-hypothesis B: *In terms of the level of reading literacy at the end of the first grade of elementary school, there is a statistically significant difference between the results of the children in the AS group and the SF group.*

Conclusion: The difference in the level of reading literacy at the end of the first grade between children taught by means of the analytical-synthetic method and Sfumato method: the calculated value of the test criterion $t = 0.98$ was compared with the critical value of the t -test criterion for the selected level of statistical

Table 3. Basic data for testing of sub-hypothesis C

	Number of children (n)	Average number of points (\bar{x})
SF group	30	30.77
G group	24	32.63

significance (0.05) and the respective number of degrees of freedom $f = 315$. The critical value of the test criterion is greater than the calculated value; therefore, the null hypothesis is accepted with a confidence level of 95%. There is no statistically significant difference between the results of the children in the groups that were tested in terms of the level of reading literacy at the end of the first grade.

C) Children taught by means of the genetic method (G group) and children taught by means of the Sfumato blended reading method (SF group):

Sub-hypothesis C: In terms of the level of reading literacy at the end of the first grade of elementary school, there is a statistically significant difference between the results of the children in the G group and the SF group.

Conclusion: The difference in the level of reading literacy at the end of the first grade between children taught by means of the genetic method and Sfumato method: the calculated value of the test criterion $t = 1.60$ was compared with the critical value of the t -test criterion for the selected level of statistical significance (0.05) and the respective

number of degrees of freedom $f = 52$. The critical value of the test criterion is greater than the calculated value; therefore, the null hypothesis is accepted with a confidence level of 95%. There is no statistically significant difference between the results of the children in the groups that were tested in terms of the level of reading literacy at the end of the first grade.

Discussion of the research results

Reading literacy is closely associated with the target categories defined by the current educational curriculum in all its tiers. Although a detailed analysis suggested that the term 'reading literacy' was included in the curriculum only marginally, this term is part of the key competences which are mandatory in education and with which all children should be equipped.

The present research study focuses on children in the first grade of elementary school and whether their level of reading literacy is affected by the method selected for teaching elementary reading and writing. The authors developed an achievement test which was given

to children at the end of the first grade, when they already had some experience with using texts. According to the educational objectives, children at the end of the first grade should be able to read a text correctly in terms of technical aspects and also to understand it, speak about it, and think about it.

Regarding the high variability of the methods used for teaching elementary reading and writing, the authors of the present research study selected those that were accessible and the teachers were willing to use for the purposes of the research. These were both traditional methods (the analytical-synthetic method and genetic method) and an alternative method (the Sfumato blended reading method). Because of the inconsistent distribution of the methods in the research sample, the results of the study cannot be generalized. Similarly, the differences between the methods were not statistically significant; therefore, the items in the achievement test were assessed in terms of quality.

The comments concerning the methods were described in the previous chapter. Nevertheless, this section will include a summary of the results. Except for one item, the best results were always achieved by children taught by the genetic method. This included text comprehension, text analysis, and tasks associated with searching and orientation in a text. The results concerning the other two methods were comparable. This can be explained by the fact that

the genetic method has elements of the global method and is a modified version of Kožíšek's methodological procedure. It is based on breaking words down into sounds and constant training of visual and auditory perception at the expense of writing. In this way, more attention is paid to the meaning, compared, for example, with the method most commonly used in Czech schools, which is the analytical-synthetic method. Even in the case of the genetic method, although it initially focuses on global reading, children themselves need to analyse and synthesize words because words are broken down into syllables. Experience suggests that children with a reading or writing deficit in the form of specific learning disorders do not show any handicaps during the stage of training in elementary reading and writing. Problems with reading come in higher grades, in which the technique of reading is built on analysis and synthesis, and as readers become more experienced, their reading gets faster and they break words down optically into syllables, which they are able to assess globally. Readers who are unable to adopt the skill of word analysis and synthesis and continue to break words down at a higher speed of reading and with longer texts inevitably start to guess words. This leads to guessing of the text and incorrect interpretation. This was not apparent at the end of the first grade, when the children taught by the genetic method showed better

results. They used texts that were appropriate to their age and reading experience.

Considering the use of the analytical-synthetic method to teach elementary reading and writing and regarding the worse results, the authors speculate why most schools in the Czech Republic use this method in the first grade. The authors are convinced that at the beginning the analytical-synthetic method is more difficult. However, the sooner children understand how to break words down into syllables and sounds and use them to make words and sentences, the better and more precise their reading experience is. Regarding the fact that analysis and synthesis take place immediately, any learning disorders are detected at the end of the first grade because word decomposition and composition is a tool to diagnose specific learning disorders. Syllables have a semantic meaning and therefore, learners might need to acquire more experience with reading, which can result in prolonged training. Therefore, if children at the end of the first grade have not got rid of syllabification (which in the case of this method usually occurs up to the first third of the second grade, until the learners' reading becomes automatized), they might have problems with text comprehension, which is the essence of reading literacy.

S is an alternative method that is only marginally used in the Czech Republic; therefore, the number of respondents was very small. For these reasons, the

method will not be described in detail. It can be concluded, however, that the results were comparable.

Regarding this fact and the results mentioned above, it would be very interesting to continue the research and test the remaining assumptions. One of them concerns whether at the end of the second year of elementary school children taught by the genetic method achieve better results in the area of reading literacy compared with children taught by the analytical-synthetic method.

Conclusion

Writing and reading, as human skills that need to be learned, require not only mechanical and technical dexterity, but especially psychological preconditions of an individual for successful adoption of the skills.

Reading and writing are intellectual activities, the level of which depends on the reader's or writer's maturity and experience. This is "*a special case of visual perception, which uses associations from the area of speech kinaesthesia (perception of the movement of the speech organs)*". In the context of reading (Křivánek & Wildová, 1998, p. 18) and in the context of writing (Šupšáková, 1996, p. 27) it is "*the basic literacy instrument used for the purposes of expression and communication. It is used in everyday life, in all curricular subjects, and contributes to an all-round development of the learner's personality.*"

The modern teaching of reading builds on children's preschool language development. Emphasis is placed on maintaining the continuity of the development in the pre-school period and school period. To teach children to communicate in a verbal and written way is one of the fundamental objectives of education at elementary school. Each school should instil a love of reading in children and should teach them to read correctly, fluently, and distinctly, to understand the content, and to acquire the basics of good reading (Šikulová & Rytířová, 2006).

The task of the school is to show children how to find a place for reading in their life, teach them how to get used to reading, and to work with texts. Reading is compulsory in school but at the same time there is an opportunity to show those children who are not encouraged to read at home how interesting reading is. Children can enjoy reading in literature classes. The school can motivate children to read and thus improve their educational opportunities. However, this activity requires appropriate care (Václavíková Helšusová et al., 2012).

To teach children to read correctly is not easy. This difficult task requires a trained teacher in terms of methodological, professional, educational, and psychological approaches. The teaching of initial reading is based on the speech of six-year-old children. Training in reading also uses breathing and articulation exercises. At the beginning, children

are unable to distinguish between the word and the thing that the word designates. The sound aspect of the word is not differentiated from the content. This is the reason why children concentrate on examining speech, the meaning of words, and the sound aspect. Maximum attention is paid to correct pronunciation; children learn to distinguish sounds by hearing, and identify whether a sound is at the beginning, in the middle, or at the end of a word (Blatný & Fabiánková, 1981).

To become a successful reader means to read correctly and understand the content of the words in the text. The way and speed of reading reflect the level of analysis and synthesis of words and correlations between them. The basic precondition for understanding a text is the ability to read the text correctly. It is important to teach children how to read correctly, accurately, and without errors. The way of reading suggests the reader's performance. A typical feature is the fluency of reading words, phrases, and sentences. Deviations from fluent reading include syllabification of words, whispering of sounds, etc. The first grade focuses on reading easy fluent sentences with appropriate rhythm. In order to fulfil this goal, at first students learn to read syllables, and then to syllabify in a discontinuous way and finally in a continuous way. It is necessary that children join syllables together with appropriate stress. Only after that is fluent reading possible. The speed of reading

determines the overall reading performance. The method and fluency of reading are reflected in the speed of reading. If children read too slowly or too quickly, text comprehension becomes worse.

Later, the emphasis is also on quicker reading. However, it is necessary not to increase the speed of reading at the expense of proper articulation and comprehension.

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