

## EXPERIMENTAL VERIFICATION OF THE READING COMPREHENSION INTERVENTION FOR THE GERMAN LANGUAGE AS L3

EVA STRANOVSKÁ

Department of Romance and German Studies, Faculty of Arts, Constantine  
the Philosopher University in Nitra  
Štefánikova 67, 949 74 Nitra, Slovakia  
**E-mail address: [estranovska@ukf.sk](mailto:estranovska@ukf.sk)**  
**ORCID: <https://orcid.org/0000-0002-6766-0850>**

ANIKÓ FICZERE

Department of Romance and German Studies, Faculty of Arts, Constantine  
the Philosopher University in Nitra  
Štefánikova 67, 949 74 Nitra, Slovakia  
**E-mail address: [aniko.ficzere@gmail.com](mailto:aniko.ficzere@gmail.com)**  
**ORCID: <https://orcid.org/0000-0002-9987-4909>**

ERZSÉBET SZABÓ

Department of Romance and German Studies, Faculty of Arts, Constantine  
the Philosopher University in Nitra  
Štefánikova 67, 949 74 Nitra, Slovakia  
**E-mail address: [erzsebet.szabo@ukf.sk](mailto:erzsebet.szabo@ukf.sk)**  
**ORCID: <https://orcid.org/0000-0003-4176-3410>**

### ABSTRACT

**Aim.** The main aim of the research was to verify the reading comprehension intervention program for the German language that builds on complex models of foreign language text comprehension while stimulating the cognitive, affective and social levels of reading.

**Methods.** The respondents of the research were studying English language in their 3<sup>rd</sup> year in secondary schools in Slovakia. The data were collected with the didactic reading comprehension test for the German language (Hockicková et al., 2020). The research was conducted through a pre-test before the intervention program and a post-test after the intervention. The basic characteristics of the examined variables were described using descriptive statistics. A paired t-test was used to detect differences in reading comprehension before and after the intervention.



**Results.** The results of the research confirmed an increase in German texts comprehension in each experimental group. A statistically significant difference in reading comprehension performance was not confirmed in the control groups without completing the intervention program.

**Conclusion.** The reading comprehension intervention program for the German language at A2 level appears to be effective in the direction of increasing performance in reading comprehension of German texts. The intervention in German text comprehension is manifested in two simultaneous work practices, namely in the development of predictors and in working with different types of texts as well as different reading strategies.

**Keywords:** second foreign language, reading comprehension, intervention

## INTRODUCTION

One of the key questions in contemporary foreign language education is the research question, which aspects of reading comprehension is to concentrate on within the process of developing comprehension, as well as which markers are necessary for orientation in different kinds of reading texts to observe in order to prepare pupils for the needs of the current labour market, to be able to orient themselves in foreign language texts and, above all, to understand them. The availability of diverse internet resources often has the negative effect of uncritically 'reading everything' (unverified, irrelevant or genre-incongruent resources), which in pedagogical practice increasingly transforms into readers' overload or text fatigue, paradoxically leading to resistance to the text and not reading. On the other hand, ineffective reading often occurs – reading without awareness of the meaning of the text, or of possible inconsistencies, missing information, etc.

Reading comprehension in a second foreign language (L3) is considered to be a particularly challenging and specific process, because it requires a higher cognitive load from the pupil, which is related to the recognition of linguistic specificities within individual foreign languages and the mother tongue. Contemporary society requires from the pupil to perceive and understand texts in several foreign languages. However, this raises the question of the extent to which society supports the teaching of L3. One of the priorities of European language policy is the maintenance of linguistic diversity, cultural identity and, last but not least, the promotion of effective foreign language education (Eurobarometer No. 386, 2012).

The current research (León & Escudero, 2017; Stranovská et al., 2020; Lalinská, 2020; Azizi et al., 2020; Khonamri et al., 2020; Khonamri, Králik et al., 2021, etc.) focuses mainly on the cognitive and functional aspects of reading comprehension and reading competence. For this reason, little attention has been paid to specific needs focused on reading comprehension, with an emphasis on cognitive, motivational, social, and emotional processes such as the ability to perceive, experience, interpret and evaluate an artistic text and to use the experience of comprehending an artistic text in communicative activities.

Although the most recent researches in international measure have focused on creating and defining a model of the successful fluent reader, none of it has focused on identifying the causes of (mis)comprehension and verifying interventions in the reading comprehension process. The absence of intervention in the reading comprehension process is one of the main causes of unsuccessfulness in comprehension of a foreign language text. This is the absence of an in-depth approach to the text as a social-psychological model structure, and at the same time the absence of work with model text structures that can be abstracted against the background of concrete, individual linguistic expressions associated with particular communicative spheres (e.g., common, institutional, professional, promotional, school, literary).

Both pupils, who will achieve a higher quality of reading on the basis of stimulation and development of the identified predictors, and teachers, who will have prepared concrete examples of working with reading strategies and techniques, will benefit from the intervention in the reading comprehension process. In addition, they will have at their disposal a database of different types of texts for developing intensive and extensive reading, as well as a database of tasks or activities before, while and after reading and strategies for working with the text.

The aim of the research is to verify the reading comprehension intervention program for the German language, to find out the differences in reading comprehension at the beginning and after completing the reading comprehension intervention program for the German language.

## THE IMPORTANCE OF DEVELOPING/STIMULATING READING COMPREHENSION IN TEACHING GERMAN LANGUAGE AS A L3 LANGUAGE

The process of reading comprehension has a complex character, involving not only the receiving and internal processing, but also the interpretation of the received information. According to Peter Gavora (1992), this activity requires first of all activity and effort on the part of the reader, which results in the conscious assimilation and acquisition of the information. The effort to receive the text is closely related to the pupil's motive, which can be understood as the pupil's desire to acquire new information in order to be able to make use of it in carrying out certain activities, such as problem solving. At the same time, the pupil's abilities and skills are developed and knowledge is expanded through new information. However, this requires the pupil to be active, because without the pupil's willingness to perceive, understand and memorize the text, reception, i.e. reading comprehension cannot take place. Another important assumption for the reception of the text is the pupil's intrinsic human motivation, which is guided by a deliberate decision to realize that goal (Szabó & Sokol, 2021). An experienced and proficient reader

receives the text quickly, which confirms that the processes of text reception take place without serious problems (Cibáková, 2012; Gavora, 1986).

The reception takes place in three phases: perception – comprehension – memorization. In the reception of the text, an important role is played by the cognitive processes of pupils, which represent the levels of how to receive, process and use information from the text (Sternberg, 2002; Schwarczová, 2009). In order to process the meaning of the text, pupils need to use a variety of cognitive learning strategies, learning techniques, as well as their language skills, which enable them not only to memorize information from the text they read, but also to store it in their long-term memory. This means that comprehending a text requires not only the pupil's ability to read quickly and fluently without errors, but also the engagement of thought processes (Cibáková, 2012; Meng, 1998).

The first level of reception is called perception of letters. It is a process, in which the pupil registers and distinguishes different graphic and phonological elements of a certain text, to which he/she subsequently assigns meanings and stores them in his/her memory. In reading, the eye takes the form of jumps, which are called forward and backward saccades. Backward saccades have a corrective meaning, they are used by the pupil when he/she has misunderstood the text. The eye movements are subconscious, the pupil is not aware of them.

The next phase of reception is called text comprehension, which can be described as the content and aesthetic interpretation of the text, in other words, it is the search for and understanding the meaning of the text, it is the clarification of the text for oneself, the basis of which is primarily the knowledge of the world (Gavora et al., 2008). Furthermore, reading comprehension is also defined as a way of consciously extracting information from the text in which the pupil identifies meanings between elements of the text, such as words and sentences, and is able to make connections between sentences, evaluates the overall meaning of the text and then reaches a conclusion (Willingham, 2017). This implies that text comprehension has a so-called relational character. While identifying the elements of the text, the receiver puts his/her prior knowledge in relation with the new information and based on the correlation of these elements, the receiver can better understand the meaning of the text (Gavora, 1986). Moreover, it is necessary to realize that text comprehension is an active process, in which the pupil not only takes in the information contained in the text, but expresses a certain attitude or agreement, disagreement, evaluation and consideration of its meaning and usefulness. This means that the pupil conducts an internal dialogue with the author of the text, which requires the pupil's thought activity (Gavora, 1992; Radulović et al., 2022; Roubalová et al., 2021; Khonamri, Hashemi et al., 2021).

The last phase of reception is memorization. It is the process by which information is stored in the pupil's memory. According to the length of information retention, we distinguish between short-term and long-

-term memorization. In short-term memorization, information remains in memory for only a few minutes. Subsequently, they disappear from memory or pass into long-term memory, where new information causes changes in the already stored information and the acquired information is stored systematically and logically. Information integration, which can be defined as the combining of information into more complex memory structures, plays an important role in memorization and helps in learning, because integrated information allows pupils to use more information at the same time, such as generating text summaries and inferences (Walker & Meyer, 1980). Ján Čáp and Jiří Mareš (2001) further distinguish between episodic and semantic memory. They define episodic memory as a process in which one focuses on events called episodes, which are stored according to a temporal sequence. In contrast, semantic memory is primarily concerned with verbal symbols, concepts and the relationship between concepts and stores them hierarchically. When learning from the text, the semantic memory is preferred, because memorization proceeds better the clearer the structure of the given text (Cibáková, 2012).

At the same time, we agree with the views of Ľudmila Liptáková and Dana Cibáková (2013) and Gavora (1992) that memorization together with text comprehension take place more or less in parallel and support each other. Memorization is more effective, if the pupil understands the acquired information and comprehension is deeper, if the pupil can rely on the information he/she has memorized from the read text.

## THE QUALITY OF READING

In context of successful reading comprehension in a foreign language, Selma M. Meireles (2006) lists three important requirements that are necessary for the pupil to comprehend foreign language texts.

The first requirement is linguistic knowledge, which includes pronunciation of the foreign language, knowledge of letter combinations, morphological and syntactic structures as well as semantic properties of morphemes and words. Linguistic knowledge enables the perception and recognition of the text. In foreign language text comprehension the pupil must be able to recognize letters and their combinations, as well as sentence elements and be able to attribute appropriate meanings to them. This requires knowledge of vocabulary which enables the pupil to understand the meaning of the text and to infer or reach a conclusion (Rayner, 1998; Nassaji, 2003). Furthermore, the pupil must also master syntax (sentence structure), because a sentence is more than the summary of the meanings of the words. While decoding a sentence, the pupil must consider the content, as well as the syntactic aspect of the sentence, e.g. how words are combined into sentences and sentences into texts (Crain & Shankweiler, 1988). As a result of the lack of this knowledge, linguistic decoding of the text becomes incorrect, inappropriate, or even impossible.

In addition to knowledge of the peculiarities in foreign language pronunciation, word or sentence formation, reading comprehension in a foreign language can also be affected by knowledge of the cultural context of the target language country. Cultural knowledge is another requirement that can be defined as the experience that pupils gain through direct contact or from the media with regard to the target culture and its customs and values. These experiences influence not only the text comprehension, but also the interpretation of the concepts contained in the text. They also help to understand phrases that should not be taken literally and to see the deeper meaning and the relations behind the words. Authors of the texts often assume these experiences and knowledge in foreign language readers, which is why they remain unspoken in the text. The ability to understand more than what is stated in the text is based on knowledge of everyday situations, routine actions, human behaviour, typical roles in the target society, but also on textual conventions that lead the pupil to conclusions. Lack of this knowledge can make reading difficult.

The last requirement is stylistic knowledge. This includes the various stylistic genres and forms that the pupil must master. In addition, stylistic knowledge includes the norms of standard text production, which are important for the pupil to be able to imagine the content of the text based on its structure (Solmecke, 1993; Wolff, 1996). When writing, the writer takes into account that he/she must express himself/herself in such a way that the pupil understands it. In order to do this, the writer must have an accurate understanding of pupil's background knowledge as possible. However, pupils often lack stylistic knowledge that differ from their habits and knowledge used in their mother tongue. In addition, pupils do not know how to adequately observe some stylistic distinctions, such as the differences between standard language and dialect and between spoken and written language (Fabricius-Hansen, 2002; Meireles, 2006).

As can be seen from the above paragraphs, the lack of linguistic, stylistic and cultural knowledge greatly hinders the foreign language text comprehension. For this reason, it is necessary to engage in a foreign language reading comprehension intervention through which the pupil's reading skills and strategies are developed so that the pupil is able to search for specific information, infer implicit information, comprehend the main idea of the text, and at the same time evaluate the overall meaning of the text.

### READING COMPREHENSION INTERVENTION FOR THE GERMAN LANGUAGE AS L3

A complex approach of developing reading comprehension and stimulating cognitive processes, affective and social levels requires intervention. In comparison with education, intervention not only provides stimulation and facilitation of the described processes and mechanisms of learning, but it has primarily preventive and corrective character.

By the preventive character we mean the consolidation of the optimal state, i.e. pupils who have developed cognitive processes at a higher level and are more linguistically proficient, consolidating their processes and mechanisms necessary for working with the text and comprehension. On the other hand, the corrective character means that the intervention seeks to optimize cognitive processes in the way that comprehension occurs, i.e. pupils whose comprehension and developed cognitive processes are at lower level and are less linguistically proficient. The intervention always focuses on one process that is strengthened or developed through the technique.

Intervention refers to an action on the pupil or procedure, technique, method, which aims to interrupt, modify (optimize), change or consolidate the way the pupil works with the text, or how he/she engages cognitive functions in the process of processing information from the text, how he/she grasps and uses it when working with the text, or what strategies he/she chooses to work with the text in order to understand it. At the same time, the pupil's individuality is also taken into account in order to intervene in the direction of achieving the greatest possible effect in his/her learning process. This implies that the intervention involves an eclectic approach of a wide range of methods and their elements that support not only the development of reading comprehension, but also personal and social characteristics (Stranovská & Ficzere, 2020; Gadušová et al., 2021).

We designed the reading comprehension intervention program for the German language in order to stimulate or develop reading comprehension at the A2 level according to CEFR for languages. The intention of the intervention program was to help teachers in preparing pupils for reading comprehension and working with the text in order to develop their reading skills. By designing the intervention program, we took into account the performance and content standards of the language level, as well as the gender and developmental specifics of the group and the field of study, the focus of the secondary school and the pragmatic level in the texts and activities (Hockicková et al., 2020).

The intervention program has the following character:

- working with the text,
- developing cognitive processes.

Working with the text has three phases, namely before, while and after reading the text. Working with the text is often replaced with working with the test tasks, by which we are not teaching the pupil to work with the text or not developing comprehension, but we are testing comprehension, i.e. whether the pupil has understood the text. We do not consider this type of work with test tasks as intervention work with the text. We concentrate on developing comprehension and motivation to work with the text and to read in a foreign language, developing the affective level when working with activities before, while and after reading the text, or the pupil's experience of working with the text through different techniques and activities.

Developing cognitive processes means stimulating and supporting individual cognitive processes. In each intervention unit, one or two inter-related predictors are developed by deliberately concentrating on a given cognitive process through activities. We progress from lower to higher processes, i.e. attention, concentration, memory, perception, cognitive structuring, inferential thinking, imagination, divergent thinking, tolerance of ambiguity, critical thinking and self-reflection (Stranovská & Ficzer, 2020).

Finally, we can conclude that working with reading comprehension intervention in a foreign language is necessary and nowadays inevitable, because it not only links the interaction of linguistic processes with cognitive ones, promotes affective and social levels, but also mediates different methods of working with the text so that the acquired reading comprehension skill can be used in the pupil's personal and professional life.

## EMPIRICAL RESEARCH

The research focused on the verification of a module of the intervention program for the German language at A2 level, which aims at intervention or modification in a certain problem area. In our case the development and consolidation of pupil's communicative competence and reading skills in German language teaching. The research is part of the national research project APVV-17-0071 Promoting reading literacy in mother tongue and foreign language.

### Hypothesis

H1: The performance in reading comprehension is statistically significantly better after completing the intervention program.

### Methods

The respondents' reading comprehension performance for the German language was measured using a didactic reading comprehension test at the A2 language level. The didactic test was developed by a team of experts within the project APVV-17-0071 *Promoting Reading Literacy in Native and Foreign Languages* (Hockicková et al., 2020). The development of the test was based on the valid documents of the Slovak language policy, especially the State Educational Program and the Common European Framework of Reference (CEFR). The test contained four texts. Twenty items were assigned to the texts, three from them were open-ended and the rest were close-ended. Respondents answered using an answer sheet to different types of items: dichotomous choice, (true-false), simple choice, matching, completing and ordering items. The reliability rate of the test reached Cronbach's  $\alpha = 0.84$  (Lalinská, 2020).

The research was carried out as follows: first measurement of reading comprehension (through a pre-test before the intervention program) in the experimental and control groups; completion of the intervention program



in the experimental groups; conventional teaching without intervention in the control groups; second measurement of reading comprehension (through a post-test after the intervention program).

The measurement results were statistically processed using SPSS software. Descriptive statistics was applied to detect the average performance and the distribution of data in the didactic tests. Differences in reading comprehension performance were ascertained through the statistical method of paired t-test.

### Research sample

The research was carried out in a number of vocational secondary and grammar schools in western and southern Slovakia. The total number of respondents was 142. The age of respondents were between 17 and 19 years and were attending the 3<sup>rd</sup> year of secondary school. The pupils were studying German language as a second foreign language at A2 level. The respondents were divided into two groups: pupils from grammar and secondary schools, with a slight preponderance of secondary school pupils (65%) in the sample, ahead of grammar school pupils (35%). These groups were subsequently divided into further subgroups, namely four experimental and two control groups according to individual classes.

### Results and discussion

The descriptive statistics of pupil's performance in the didactic reading comprehension test for the German language are presented in Table 1.

Table 1

*Descriptive statistics of pupil's performance in the reading comprehension test for the German language (N = 142)*

		Mean	Std. Deviation	Std. Error Mean
Pair 1	ES 1 pre	18.00	2.726	.704
	ES 1 post	19.67	1.447	.374
Pair 2	ES 2 pre	18.86	2.797	.748
	ES 2 post	22.21	0.579	.155
Pair 3	ES 3 pre	10.38	2.434	.675
	ES 3 post	12.31	1.548	.429
Pair 4	ES 4 pre	15.06	3.255	.814
	ES 4 post	19.38	3.008	.752
Pair 5	KS 1 pre	19.00	2.602	.695
	KS 1 post	16.86	4.704	1.257
Pair 6	KS 2 pre	9.92	3.201	.888
	KS 2 post	10.85	1.725	.478

*Note:* ES 1 – ES 4, experimental groups 1 – 4; KS 1 – KS 2, control groups; pre, pre-test, first measurement; post, post-test, second measurement.

Source: own research.

**Table 2**

*Significance of differences in reading comprehension performance in the German language category in measures 1 and 2, paired samples t-test (N = 142)*

		Paired Differences					T	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	ES1pre-ES1post	-1.667	1.988	.513	-2.768	-.566	-3.247**	14	.006
Pair 2	ES2pre-ES2post	-3.357	2.735	.731	-4.936	-1.778	-4.593**	13	.001
Pair 3	ES3pre-ES3post	-1.923	1.754	.487	-2.983	-.863	-3.953**	12	.002
Pair 4	ES4pre-ES4post	-4.313	3.381	.845	-6.114	-2.511	-5.102***	15	.000
Pair 5	KS1pre-KS1post	2.143	4.672	1.249	-0.554	4.840	1.716	13	.110
Pair 6	KS2pre-KS2post	-.923	3.174	.880	-2.841	.995	-1.048	12	.315

*Note:* ES 1 – ES 4, experimental groups 1 – 4; KS 1 – KS 2 – control groups 1 – 2; pre, pre-test, first measurement; post, post-test, second measurement.

Source: own research.

The comprehension level before the intervention was in the average to slightly above-average range in all examined groups (average rough scores ranged from 9.92 to 19 out of a maximum of 23 points). While average rough scores increased in each experimental group, we found out only a slight increase (KS2) and decrease (KS1) in reading comprehension level in the control groups. Furthermore, the variance in reading performance in the experimental groups has been reduced, whereas this phenomenon was not clearly evident for the control groups (Table 1).

The significance of the differences in reading comprehension was tested using a paired t-test. The text comprehension in the German language category increased statistically significantly in all experimental groups, ES1 – ES4 (Table 2), with the largest increases in comprehension observed in experimental groups 2 and 4 (both vocational secondary school classes). After completing the reading comprehension intervention program in ES2, the comprehension increased statistically significantly into the above-average range (AM=22). There was no statistical significance in the control groups. Our hypothesis was confirmed in every experimental group examined.

## DISCUSSION AND CONCLUSION

The results of the research show that the reading comprehension intervention program for the German language at A2 level appears to be effective in the direction of increasing performance in reading comprehension of German texts. Reading comprehension of German text increased after completing the intervention program. Pupils showed comprehension in intensive and extensive reading texts. We attribute this to working with tasks that are oriented towards inference and implicit information processing as well as deduction, i.e. inferring information from the text. We also interpret the manifestation of the program's effect in increasing comprehension by linking work with linguistic and cognitive variables. It means that the intervention in German text comprehension is manifested in two simultaneous work practices, namely in the development of predictors (cognitive or metacognitive process) and in working with different kinds of texts as well as different reading strategies. We see the essence of the intervention in developing comprehension, cognitive processes, developing and supporting motivation to work with the text, motivation to foreign language reading, developing the affective level when working with activities before, while and after reading the text and the pupil's experience of working with the text through different techniques, activities, etc. In practice, language skills are linked to different ways of acquiring reading as well as language acquisition, and in a real language environment they are intertwined, therefore we recommend a comprehensive approach to develop all skills alongside reading comprehension, while taking into account the affective and social levels of these processes in the teaching process.

The measurement of the effectiveness of the intervention program is specific in the elimination or selection of the variables examined. Currently, program evaluation is an actual topic as methodological and statistical possibilities are on the rise (Stranovská & Ficzer, 2020; Lalinská, 2020; Gadušová et al., 2021; Khonomri, Králik et al., 2021 and others). It was all the more challenging to carry out the realization of the effectiveness of the reading comprehension intervention program for the German language, because of its interdisciplinary character, linking linguistic, pedagogical and psychological sciences, which makes its content remarkable and applicable at multiple levels. According to Soňa Lovašová and Beáta Balogová (2018), one of the possibilities to detect the effectiveness of an intervention program is to perceive the content of the program as a variable which has an effect on the participants of the research. If the change in the expected parameters (on which the program acted) is confirmed and as many uncontrolled factors as possible can be eliminated, it is possible to talk about verification of success, which was evident in our research.

We sought to contribute to scientific knowledge in the field of reading and comprehension processes in the German language, their development through the intervention, i.e. reading comprehension intervention program

and the stimulation of cognitive and metacognitive processes from lower to higher cognitive processes: attention, concentration, memory, perception, cognitive structuring, inferential thinking, divergent thinking, tolerance of ambiguity, thought flexibility and critical thinking. We perceive the perspective of further research in further verification of the intervention program in other regions of the Slovak Republic as well as at an international level and in extension to other world foreign languages and mother tongue. The development of reading comprehension intervention program in different foreign languages is consistent with the global trend and in our situation it is not only actual, but also necessary. It appears to be beneficial, because the principles of an active social learning and self-regulated learning, coupled with the development of multilingualism, bring the added value of a more complex approach to human communication and relationships.

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