

# TECHNOLOGICAL SUPPORT IN THE PROCESS OF INTERACTION OF THE PSYCHOLOGIST AND THE SPECIAL TEACHER

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## **Abstract**

Developmental psychology does not provide desirable results in the development of a child with special needs in the process of his or her education if the teacher does not come together with the psychologist in revealing and removing disbalance between education and development of each child. In this report the unconventional approach to use of computer technologies to support the process of interaction of the psychologist and the teacher has been considered – the “dialogue” on the problem of the relation of education and development of a child with the special needs.

Developing and diagnostic computer environment “World through your window” has been created, which is special educational tools with the following functions:

- To make “visible” the problems of child development that are hidden in conventional education;
- To show how to transform the selected problems of child development into the special tasks of his/her education;
- To show how to correlate “steps” in child development to “steps” in a teacher’s technique.

The report shows how to use this kind of special tools for revealing and removing disbalance between education and reading development of a child.

**Key words:** *computer technologies, educational tools, special needs, reading development.*

## **Introduction and problematics**

The researchers of the different countries of the world in last decades gave huge attention to studies aimed at the determination of the role and functions of computer technologies both during education of children with special needs and during teacher training and retraining. Each of the created computer programmes reflects one or another concept of use of computer technologies in special education of children or in the system of training of specialists (Elsendoorn, 1999; Printzen, 1991).

In the present report the unconventional approach to use of computer technologies during teacher training and retraining for the system of developing education of children with the special needs has been considered. The special role has been assigned to computer technologies, namely the role of support of the process of interaction of the psychologist

and the teacher, or support of “dialogue” on the problem of the relation of education and the development of a child with the special needs.

Accordingly, the following unconventional functions are assigned to computer technologies:

- to make “visible” the problems of the development of a child that are hidden in conditional education;
- to show how to transform the revealed problems of the development of a child to special tasks of his/her education;
- to show how to correlate “steps” in child development to “steps” in a technique of the teacher,
- to attract attention to the basic substantial lines of the development of a child and to adequate educational tasks.

Why are just this role and these functions for computer technologies considered so important?

In the system of developing education the psychologist is called to help the teacher to analyze the results of education from the point of view of progress in child’s development, to correlate the contents and methods of education to a level of actual development of each child and to “a zone of proximal development”. The psychologist should solve a difficult and not always pleasant task, namely to show the teacher the mistakes that he/she made and that have resulted in disbalance between development and education. Thus, every time an interaction of the psychologist with the teacher is directed to the change of the attitude of the teacher to the results of the work in aspect of development of a child, to certain reorganization of professional thinking, overcoming of “stamps” of professional consciousness. It is obvious that words and explanations are not sufficient for the psychologist in the solution of such tasks. The certain work with the teacher is required. It is necessary to create such conditions where the teacher himself/herself could find out that disbalance between development and education which is seen or even obvious for the psychologist. Only after that the teacher is really ready to participate in a constructive dialogue with the psychologist about the mistakes in the work that have resulted in this disbalance and about necessary changes.

Specific substantial area of learning to read, which is one of the most difficult for the teacher working with a child with the special needs, has been addressed. The examples have been given how with the help of computer technology the hidden problems of reader’s development of a child become visible for the teacher and how the conditions for teacher’s reinterpretation of the results of own professional activity in the aspect of reader’s development of a child are created.

#### **Computer environment “World through your window” – reinterpretation of the results of teacher’s professional activity in the aspect of the development of a child**

One of the most typical and frequent stamps of professional thinking of the teachers of special schools is their belief that the understanding of the whole text is the sum of understanding of its separate parts. They believe that if the child understands all words and sentences included in the text he/she will understand the text as a whole. Teachers do not declare it but they construct their work with a child coming from this belief. At lessons they aspire to create the conditions for mastering all elements of the text (words and sentences) and hope that in this case the text as a whole will be understood by the child. They explain difficulties of understanding of the text by children first of all by ignorance of lexicon and grammar. For researchers and for qualified psychologists these are quite obvious misunderstandings. It is clear for them that the understanding of the whole is not provided with understanding of its

parts. The psychologist understands that the difficulties of a child may be in the absolutely other field since the methods of the analysis of the text as a whole (main mechanism of reader's activity) may not yet be formed. The psychologist makes many efforts for the explanation to the teacher of the mechanisms of reader's activity, convinces the teacher in the necessity of the reorganization of the contents and technique of learning to read in relation to particular child, but these explanations rather frequently do not have influence on the teacher because he/she continues to see difficulties of understanding of the text by children through a prism of the stamp of professional thinking: "Understanding of any text is provided with understanding of a verbal line". To destroy this belief and to turn the teacher to real problems of the development of reader's activity of a child, the psychologist should help the teacher to independently make the discovery that the difficulties of a child are not in that area. This is the purpose of the psychologist at the first stage of interaction with the teacher. For the achievement of this purpose the psychologist needs some means and tools. One of such tools is the computer programme "Stories about seasons", which is the part of computer environment "World through your window" (the authors of the programme are Goncharova, Kukushkina, Korolevskaya, 1994, 1996, 1997, 2003).

"Stories about seasons" is a set of tools for detection of shortcomings just in reader's activity of a child, revealing disbalance between learning to read and reader's development.

In the present article only one of its units, "What is a problem?" will be referred to, which is directly intended to convince the teacher that a child, in spite of understanding words and sentences included in the text, cannot understand the text, and that the difficulties experienced by a pupil are caused by poor formation of those or other methods of the analysis of the text as a whole.

The unit "What is a problem?" contains special material for solving the problems. The unit consists of the set of the texts-exercises both for a child and for the teacher. The task of a child is to understand what season is described in the text, and the task of the teacher in the observations of a child's work and its results is to determine those shortcomings of reader's activity that complicate understanding. The texts are constructed so that the child does not experience difficulties both in lexicon and in grammar and the problems in understanding of the text are related to shortcomings of reader's activity proper.

In the programme the principle of offering one task (to determine what season is described in the text and to choose the appropriate button "Spring", "Summer", "Winter", "Autumn") and a number of texts which are complicated on the certain parameters have been used. All texts are short (no more than 5 sentences) and simple in lexicon and grammar. Essentially these parameters of texts are not made complicated. Instead, the requirements to mental activity of the child that ensures understanding of reading material are made complicated. According to this principle the texts are organized in five libraries: each library is a certain type of text; a certain type of text corresponds to a certain technique of mental activity. To show the different techniques of the analysis of different types of texts the examples of one text from each library have been given.

To understand what season is spoken about in the texts of the first library, it is enough for a child "to see" the key sentences with the description of obvious attributes of various seasons. For example: "It is hot outside. Katya put on her swimsuit and ran to swim. Katya's puppy ran together with her to the river. The dog jumped into water and swam for long time".

Understanding of the texts from library 2 is a little more difficult task. They do not contain obvious, direct indications on a season (for example: snow, frost). The child needs "to see" the key sentences with the description of attributes "of the second order" (snow-drift etc.). For example: "Sasha looked out of the window. Mummy came into the room and said: "We are going to have dinner". Sasha answered: "Mummy, look out of the window. Ice is floating in the river".

Understanding of the texts from library 3 is a much more difficult task. The different parts of the text generate hypotheses that contradict each other. For example: “Kolya looked out of the window. It was raining outside. It was wet and slippery. It was warm and comfortable at home. Coloured balls were hanging on the fir-tree”.

Working with this library, it is possible to come to the conviction that the knowledge of lexicon and of grammar is completely insufficient for understanding of the whole text. It is possible to see whether the child masters the elementary techniques of text analysis: ability to compare contradicting hypotheses about a season from different fragments of the text and ability to distinguish true and false, certain and uncertain messages provoking a false hypothesis.

To understand the texts from library 4, a child should “summarize” the information taken from different pieces of the text. Only such a method will allow to precisely determine the season. For example: “Lena and Olga wanted to buy ice-cream. They looked out of the window: it was raining outside. The girls took umbrellas, put on raincoats and went out. The trees stood naked. It was cold”.

Working with this library, the teacher can see once again that the knowledge of lexicon and of grammar is insufficient for understanding of the whole text. The teacher should teach a child to master the certain methods of the analysis of the text.

Library 5 contains a set of the texts for the presentation in parts. The text is showed by the computer not wholly but in the form “sentence by sentence”. In this exercise the child answers to the same question in the course of reading after the addition of each following sentence but not after he/she finished reading of the whole text.

For example: “It was cold. The sun was shining brightly. Suddenly a large black cloud appeared in the sky. It was snowing. It was windy; yellow and red leaves were floating.”

This text occurs before a child by portions:

1. It was cold.
2. It was cold. The sun was shining brightly.
3. It was cold. The sun was shining brightly. Suddenly a large black cloud appeared in the sky.
4. It was cold. The sun was shining brightly. Suddenly a large black cloud appeared in the sky. It was snowing.
5. It was cold. The sun was shining brightly. Suddenly a large black cloud appeared in the sky. It was snowing. It was windy; yellow and red leaves were floating.”

The change of the way of the presentation of the text enables to analyze the process of understanding of the context which is always hidden from teacher’s eyes. Observing hypotheses the child puts forward in the course of reading the teacher can see if each following sentence enforces the child to think again on previous one, or the text is “breaking up” during reading in pieces independently from each other, and each sentence makes the child to generate a hypothesis which is independent from the previous one.

Thus, working with the offered libraries of the texts-exercises, one may consistently check up the formation of the following skills in a child:

- to find out obvious attributes of seasons in the whole text and to be guided by them;
- to find out the hidden attributes of seasons in the whole text and to be guided by them;
- to compare contradicting hypotheses about a season from different fragments of the text;
- to distinguish true and false, certain and uncertain messages provoking a false hypothesis;

- “to summarize” the information taken from different “pieces” of the text;
- to predict the subsequent events on the basis of the read part of the text and to check up the hypotheses;
- to reconstruct the whole picture of the events described in the text.

Working in logic of the computer programme, the teacher can exclude one by one the possible reasons of misunderstanding of the text. The teacher starts with the reasons that are the simplest and obvious for him/her and finishes with the estimation of the extent of the formation of main reader’s ability, namely, desire and skill to perceive the contents of the text as whole.

Thus, the computer programme contains the material (set of the texts-exercises) and implicitly contains the strategy of action (method of consecutive exclusion of the possible reasons of misunderstanding of the text). For the psychologist this programme is the tool allowing to give the teacher an opportunity to independently find out those problems of reader’s development of a child that were hidden for him/her. This is the tool allowing to organize the conflict between experience and notions that teacher had before and newly acquired experience. Only such a conflict provides the basis for reinterpretation of settled “stamps” of professional thinking.

#### **Stages of work.**

##### **Estimation by the teacher of the texts-exercises from the point of view of their accessibility to the pupils.**

The experimental probation of the computer programme during retraining of the teachers of special schools has shown that by getting acquainted with the texts from the computer programme (software) the majority of the teachers considers them as accessible to the pupils. At their lessons children read the texts that are much longer and more difficult. Therefore, teachers, as a rule, are convinced that their children will understand such short and simple texts.

##### **Correlation of a hypothetical estimation with real results of carrying-out of the tasks by children**

The teacher is offered to invite a child and to ask him or her to carry out these exercises. Here is the point when teachers are evidently convinced that, knowing words and sentences included in the text, children frequently cannot understand the texts that seemed so simple. The teachers very emotionally experience that their assumptions and reality so obviously differed. The teacher sees how the text during reading is “breaking up” in a child’s head to separate pieces, with each new sentence generating a new independent hypothesis. Just at this moment the teachers begins to realize how difficult is the task of understanding of the text as a whole for a child and how little attention was given to this task at the lessons of reading. Many teachers at this stage spoke:

“How could I not see it?... But I did not work on it... How difficult it was for children... It is necessary to change the programme on reading...”

Now disbalance between learning to read and reader’s development of children becomes visible for the teacher and he or she is ready for constructive dialogue with the psychologist.

##### **Dialogue with the psychologist – “what should be changed”**

By finding out these new reasons of misunderstanding of the texts by children lying in the area of reader’s development of a child, the teacher asks himself/herself the question: “What should be changed?” The teacher asks the psychologist to help in the reorganization of the process of learning according to the level of reader’s development of each child and a zone of proximal development.

### Using the resources of the computer programme for transformation problems in development of reader's activity to special tasks of learning

The computer programme "The seasons" contains the special unit "Learning to think" which helps the teacher to transform problems in development of reader's activity to tasks of learning. The exercises help a child to learn to comprehend a phrase outside the context and then the same phrase in the context of the whole text. The tasks are made to demonstrate to a child that the change of the context necessarily entails change of a hypothesis. It is just this "discovery" every child does in the unit "Learning to think".

### Conclusion

The developed approach to the creation of the computer programmes that are the pedagogical tools for revealing and overcoming disbalance in different substantial areas of education of children with the special needs is realized in the computer environment "World through your window" (includes 5 parts with more than 600 exercises) and some other programmes.

Specific theme or specific "stamps of professional thinking" in one or another area are not important for the developed approach. Its essence is the emphasis on the special direction of work on the formation of teacher's reflection on the results of the professional activity in the aspect of development of a child. The prospect is teachers' use of computer technologies as tools for revealing and overcoming disbalance between development and education.

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