Learning the Semantic Analysis by 3-5 Year-Old Children When Working With an Illustrated Book

Aprendiendo el análisis semántico por niños de 3-5 años al trabajar con un Libro Ilustrado

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Received: 09/03/2017 • Approved: 15/04/2017

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ABSTRACT:
The authors have investigated the problem of children’s understanding of the meaning of a literary work as a visual-verbal unity. The features of the formation of the first semantic analysis skills in 3-5 year-old children have been identified. The importance of illustrations for the development of the ability to solve lexical tasks on revealing the meaning has been substantiated. Original research methods have been developed. A method of teaching the semantic analysis in the process of the introduction of children to the art of a fiction book has been described.

Keywords: semantic analysis, pre-school children, an illustrated book, book graphics, visual art, aesthetic perception, artistic images, artists of children's books

RESUMEN:
Los autores han investigado el problema de la comprensión de los niños del significado de una obra literaria como una unidad visual-verbal. Se han identificado las características de la formación de las primeras habilidades de análisis semántico en niños de 3 a 5 años. La importancia de las ilustraciones para el desarrollo de la capacidad de resolver tareas léxicas al revelar el significado ha sido sustanciada. Se han desarrollado métodos de investigación originales. Se ha descrito un método de enseñanza del análisis semántico en el proceso de introducción de los niños al arte de un libro de ficción.

Palabras clave: análisis semántico, niños preescolares, libro ilustrado, gráficos de libros, arte visual, percepción estética, imágenes artísticas, artistas de libros infantiles
1. Introduction

There would be no exaggeration to say that little kids love colourful illustrated books. One year-old baby traces the plot of the story with the pictures and starts to understand the meaning of a folk nursery rhyme or fairy tale. When a child gets older, illustrations help him/her enter into a dialogue with the author, complementing the auditory perception of a literary work with vivid visual images.

A children's fiction book can be defined as a form of visual art that is available to a person since the first years of life, which is the basis of development of spiritual culture of a person. In addition, there are means of growing person’s emotional and intellectual development, the reason for and the way of open communication with an adult relative (mother, grandmother, family tutor, nanny, nursery teacher) in the process of joint reading. The abilities to perceive the content of a literary work, recognize the features of artistic expression do not occur spontaneously, they are formed gradually throughout a person’s life, especially effectively – in preschool age. That is why it is so important to introduce children to the art of book and reading culture from an early age.

The semantic analysis involves the study of the semantic meaning of language units, so it is an important source of the development of the imagination and thinking. Searching for meaning, comprehension of a certain meaning revive the text, make it so attractive to the reader, regardless of his/her age. Exploring the origins of verbal creativity, Bakhtin said: "Architectonics of the world of artistic vision regulates not only spatial and temporal aspects, but also purely semantic aspects; a form can be not only spatial and timing, but also semantic" (Bakhtin, 1978, p. 121). "An idea is a certain content of our thoughts, but it has meaning not in itself, but only as a form, in which a sensual image enters consciousness; it is only an indication of this image and out of connection with it, i.e. out of judgment, it does not have meaning" (Potebnya, 1976, p. 147).

The specifics of the correlation of an illustration and a literary text are revealed in the works of scientists, who have studied the laws of the development of visual perception: Arnheim (Arnheim, 1974), Volkov (Volkov, 1981), Gankin (Gankin, 1988), Gerchuk (Gerchuk, 1989) et al. The possibilities of using the book graphics for the development of children skills of the semantic analysis are shown in the research of Ushakova (Ushakova, 1997), Lavrentyeva (Lavrentyeva, 1998), Arushanova (Arushanova, 2015) et al.

We often miss the fact that the perception and comprehension of the reading text during determining the ways of introducing young readers to a literary work, i.e. the immanent semantic analysis of the text – occur not only in the process of immersion in the book space, but also in understanding the content of book illustrations. Thus, the children's illustrated book is the first art form, accessible to the perception of the smallest child, without which it would be difficult to further understand the other arts (Goncharova, 1992). An illustration that visualizes the verbal information and helps a child understand it plays a special role. Each illustration depending on the type and mode of publication contains certain information and has meaning (Polevina, 2004).

The term "semantic analysis" can be viewed from the perspectives of linguistics, philosophy and psychology (Petrenko, 2014; Bakushinskii, 2009). Psychologists Vygotsky and Zaporozhets substantiated that a picture supplemented with a word has a greater effect and expression, since the visualization of an imaginary image bears a larger value, referring not only to a particular item, but to a whole group (or a whole class) of items. "It is clearly seen that the generalization is an extraordinary verbal act of thought, reflecting the reality in a completely different way, rather than it is reflected in the immediate sensation and perception" (Vygotsky, 2016, p. 15). The works of the famous Russian psychologist Zaporozhets are of particular importance for the study of the development of the semantic analysis skills in 3-5 year-old children. Studying an artistic effect of literary works, Zaporozhets paid special attention to the analysis of their understanding by children. In the studies that were carried out under his
leadership and with his participation, they raise issues of understanding fairy tales, fables, metaphors, and a book illustration. In the work "The psychology of perception of a fairy tale by a preschool child" Zaporozhets drew attention to the fact that, although a little child loves a colourful description and the attractiveness of external circumstances, in which characters appear, he/she gets interested very early in the inner, semantic narrative side and "a child gradually reveals the ideological content of a story". Considering the mechanism of perception and understanding, Zaporozhets argued that listening to fairy tales, along with creative games, plays an important role in the formation of a type of the inner mental activity – the ability to mentally act in imaginary circumstances, without which there can be no creative activity (Zaporozhets, 1948). It is important to take into account the fact that a little child – unlike adults – cannot "postpone" listening to or reading a book, as the interests of a child switch quickly from one object or one situation to another. A famous psychologist Mukhina proved that in the perception of a picture by a 3-5 year-old child an attitude to this picture as to the reflection of the world is formed, a child learns to associate an image of objects with real objects and understand the content of the picture (Mukhina, 2012).

An issue of the interconnection of semantics of a picture and features of perception of artistic images seems promising for the further study. Speaking about the child's perception of a book illustration, the following issues should be raised: What is the first thing a child pays his/her attention to? What artistic images remain in the memory? How does a child interpret artistic images? The pedagogic observation of the children's behaviour during the perception and discussion of various illustrations, as well as the analysis of understanding the meaning of the text suggest that a book illustration is not only a means of identifying the creative style of an artist, but also a universal method allowing to:

- penetrate deeper into the world of artistic images of the story,
- show that the nature of an illustration is determined by the way the artist interpreted the text,
- demonstrate that an illustration facilitates the perception of one and the same scene from a different emotional perspective,
- present the works of different artists.

Based on the foregoing, we can formulate the requirements for the illustrations in children's books, the subject matter of which should be clear, the composition should be well-structured, the technique should be simple and concise. As noted by the modern researcher Polevina: "They must be created in a way so that a child, looking through books, could immediately understand what they are about, learn familiar objects and imagine things that he/she has never seen" (Polevina, 2004, p. 53). Alueva found that for small children an illustration is not only an art, but also a means of didactics. Therefore, it should clearly distinguish between good and evil, the relationship between objects. An illustration for children should develop the ability to learn. The artist should develop characters, accessories, environment, nature, etc. in a detailed manner (Alueva, 2010).

2. Materials and Techniques

The children's illustrated books are the basic material (subject) of the research. In this regard, it is important to conduct a terminological analysis and provide a classification, which will allow to substantiate the subject of research (semantic analysis) and describe the research methodology.

In the subtle sense an illustration is an art work designed to be perceived in a certain unity with the text – it is found in the book and participates in its perception in the process of reading (Chagodaev, 1966, p. 174). Illustrations are integral with the literary text. Book illustrations taken out of the text can be difficult to understand and inexpressive. Illustrations are not independent in terms of the plot; they must comply with the content of the literary work. The artist should be a co-author of the book, make the ideas of the writer visible, visualize images and characters, thereby helping to better understand the content, imagine the epoch, life and
environment of book characters. But this does not mean that illustrations should be simple descriptive and graphic retelling of the text. The artist acts as a co-author of the book.

One and the same term "illustration" in psycho-pedagogical, art history and cultural studies means images, which can be different by:
- content and form,
- value for the story and the reader,
- communication between the picture and the text,
- technique.

In accordance with the objectives, images (illustrations) can be divided into scientific-educational (maps, plans, diagrams, drawings, etc.) and descriptive (interpretation of the literary work by book graphics tools).

**An exemplary book series** of the experimental study contains the following works of children's literature:

1. Russian fairy tale "The Tale of the Fisherman and the Fish" by Alexander Pushkin in three design options: with illustrations by Vladimir Konashevich, Tatiana Mavrina, Ludmila Grushina (collage technique);
2. French fairy tale "Little Red Riding Hood" by Charles Perrault in three design options: with illustrations by Yarovoy Stepan, Erik Bulatov, Oleg Vasilyev;
3. German fairy tale "The Wolf and the Seven Little Kids" by the Brothers Grimm in three design options: with illustrations by Yuri Vasnetsov, Victoria Kovalchuk, Tatiana Dubinchik;
4. Danish fairy tale "Thumbelina" by Hans Christian Andersen in three design options: with illustrations by Boris Diodorov, Sima Skop, Osamu Tezuk.

**The criteria and methods of selection of books, creating an exemplary book series, development of research methods:**

1. Wide recognition of literary texts by readers of several generations (method – overview of the most popular works of children's literature for 100 years, since the early twentieth century to the early twenty-first century);
2. Confidence of all family members in multigenerational families (methods – conversation, questioning; a monographic method);
3. Inclusion of books in the collections of reading-books for pre-school educational institutions (method – comparative analysis of educational programs, the identification of "fashion" – the most popular literary works);
4. Illustrations comprehensible for 3-5 year-old children (method – expert assessment by teachers, psychologists);
5. Librarians' recommendations (method – interviewing, creating a list of reading-books).

For further experimental research, **three sets of illustrations** have been additionally created by the artist Ludmila Dvinina:

1. "Portraits" of the characters of literary works: Goldfish, Fisherman, Old Woman (based upon the fairy tale "The Tale of the Fisherman and the Fish" by Pushkin); Little Red Riding Hood and the Big Bad Wolf (based upon the fairy tale "Little Red Riding Hood" by Charles Perrault); Thumbelina, Mouse, Mole (based upon the fairy tale "Thumbelina" by Hans Christian Andersen);
2. "Confusive illustrations": a pink fish (instead of golden one) and an old woman (instead of an old man) with a seine in the hands; Little Red Riding Hood (who is not wearing a red riding hood) and the Big Bad Wolf in a cap with a basket full of cakes;
3. "Scenes" – a series of cards with illustrations for the fairy tale "The Wolf and the Seven Little Kids" by the Brothers Grimm to determine the sequence of events described in the literary
3. Research techniques

1. "Portrait" technique. Each child is provided individually with an illustration depicting a fairy-tale character and is asked the following questions: What do you think, who is this? What character is this? From what fairy tale? Describe it in your own words. Remember the way the author (call the name of the author) describes this character in the fairy tale. Do you like this character? Why do you like him/her (What do you like about him/her)?

2. Technique of "Confusive Illustrations". Each child is shown individually a confusive illustration (see the description of the illustrative material) and is asked to tell what he/she sees in the picture. If the child gets confused, surprised, scared or shows other emotion uncomfortable for the child, ask the following questions: What is not correct in this picture? What is wrong (or What mistake has the artist done)? What does the picture should look like? What is told in the tale (nursery rhyme, story, poem)?

3. "Scenes" technique. The teacher puts the cards with illustrations for the fairy tale "The Wolf and the Seven Little Kids" and makes mistakes deliberately in the sequence of episodes. Then a child is asked to call the name of the fairy tale (or a story of other genre), explain what is wrong and restore the sequence of events. Each child is looking individually through pictures and tries to restore the impaired order.

4. Technique "My favourite picture". The teacher offers a child to choose a book that he/she loves and show his/her favourite picture (illustration). Then the teacher asks to tell what is shown in this picture and remember the episode of the tale.

5. "Association" technique. The teacher shows the children cards with abstract images (forms, colour spots, lines of different configuration) and symbols (smile, tear) and asks to say what fairy tale, character or scene this image reminds of (for example, a red spot can remind of Little Red Riding Hood from the eponymously-named fairy tale, a grey spot can remind of the Big Bad Wolf, Mouse, Mole from any familiar tale).

4. Results

During the experimental study, the following results have been obtained:

1) it has been found that a children's illustrated book as a harmonious visual-verbal complex is the best means to identify and develop a semantic aspect of speech in junior and middle-age preschoolers;

2) the author's method of studying a semantic aspect of speech in 3-5 year-old children with the use of illustrated books and specially designed teaching materials has been developed;

3) the necessity of the availability of options of illustrations for the same literary work (by at least two or three different artists) to vary the degree of difficulty and the possibility of individual choice by a child of his/her "own" illustration, similar in style, emotional response, artistic mood has been substantiated;

4) it has been proved that 3-4 year-old children more actively, deeply, independently perceive the meanings associated with the actions of literary characters (expressed by verbs), while 4-5 year-old children start to comprehend the meanings associated with the characters and the relationships of characters (expressed by adjectives, more rarely by participles and adverbs);

5) it has been revealed that 3-5 year-old children tend to identify themselves with literary characters and invest them with desired qualities (besides the qualities reflected in the literary work); imagination plays a leading role in understanding and assessing the qualities of the character: reproductive imagination with the creative elements in four year-old children and creative imagination in five year-old children; imagination plays a leading role in the development of the semantic aspect of speech of preschool children; children with a well-developed imagination showed higher levels of semantic competence (70% of four year-old children and 85% of five year-old children);

6) the dependence of the volume of the active vocabulary of children on their understanding of work.
the meaning of the word has been confirmed;
7) new evidence supporting the efficacy of the poly-art approach to the organization of children's activities in the educational space has been obtained; the importance of theatrical activities and the construction for the self-motivated transfer of disclosed meanings of words into the new semantic contexts has been shown;
8) developing research aimed at the development of the semantic aspects of speech in 3-5 year-old children has been conducted; stages of the experiential learning included the following: a) the introduction of lexical units; b) the study of semantic relations of lexical units; c) the expansion of the semantic experience and formation of practical skills of knowledgeable use of lexical units and relations in speech activity (in monologues and dialogues);
9) the role of adults (teachers, parents) in the development of children's ability to comprehend and interpret literary works has been identified; the importance of the intonation expressiveness of a reader for children to understand cultural meanings and form personal meanings disclosed by the child in a children's illustrated book has been shown;
10) a technique developed by Ushakova (Ushakova, 1997) and Lavrentyeva (Lavrentyeva, 1998) has been tested and adapted for the introduction of 3-5 year-old children to the art of fiction books; below there is a system for teaching 3-5 year-old children the semantic analysis based on this technique.

At the first learning stage, children learned to understand that each item shown on the picture, its properties and actions have names, and have come to understanding that each word names an item, its properties and qualities, or its actions, state. Much attention was paid to the use of the term "word", which contributed to the development of the children's ability to understand the facts of linguistic reality, and created a basis for exploring the relations that link the words in the native language system.

At the second learning stage, in the perception of images children learnt to detect the presence and functioning of the words in speech, the meanings of which were connected by various semantic relations. This ability has allowed each child (taking into account his/her personality) to put new lexical units in the linguistic consciousness. Grouping of words depending on their lexical meanings was the main way to solve this difficult task.

At the third learning stage, all vocabulary tasks associated with the perception of a book illustration were aimed at enriching individual statements and supporting interpretations of the content of the illustration in accordance with the content of the literary work. The division of the information by a subject matter (part of the content already known to the participants of communication) and a rheme (part of the content new to a particular child) was the most difficult task set by the teacher. The teacher created conditions for children to be able to focus on the communicative center of statements and associate the selected lexical material with it. As a result, children learnt to deliberately select and independently use lexical means, depending on a particular speech situation related to the interpretation of an illustration.

5. Discussion
How can we help young readers to develop the reading skills and viewing illustrations, learn to understand an author and artist, become a co-author of the work with their own attitude toward the characters?

Book illustrations, especially those containing abstract elements, symbols and metaphors that require explanation, are another reason for a child and an adult to read books together. It is interesting to review a book with your child and compare the illustrations of different artists, created for one and the same literary work.

The perception of illustrations by a child depends on how well he/she knows a perceived object, on the ability to examine, analyze, interpret and associate it with the existing knowledge. There are age-related differences in the perception of images. Three-five year-old children prefer
books with no text or with very little text, since for children of this age the text is of secondary importance in comparison with an illustration. The level of development of thinking allows a child to see only an image in a letter-sign. Only with the first manifestations of logical thinking, a child considers a sign as a set of summarized properties of another object.

A tactile type of perception, the most important feature of which is the planar vision of objects, is typical for 3-5 year-old children. A child sees primarily an object, not space. A child perceives the world in the way he/she sees and knows it. He/she believes in the reality of things depicted in the illustration and perceives it not as a symbolic representation, but as the essence of the surrounding world of people and objects. It is not easy for a little child to understand that physical and painted objects have different properties. For example, we cannot water the flowers with a drawn watering pot or eat drawn carrots. Limited experience of perception does not allow to identify the main characteristics of an item and ignore subsidiary ones. An illustration depicting a limited number of objects, shapes, details is available for the perception of 3-5 year-old children.

Children's imagination develops relatively, independently of the level of intelligence, since it is not controlled enough by the child. An apparent ease of children's fantasy, the rate of appearance of new ideas, the mobility of their drawing in the picture, construction, collage create a false impression that it is luxuriant. Vygotsky noted that the images of imagination are made of elements taken from reality, from the experience of a person (Vygotsky, 1967, p. 65). A child has little experience, so the imagination is poorer than that of an adult. The imagination cannot be confused with the flexibility and dynamics of reproductive vision. The main thing in the imagination is the transfer of certain properties from one image to another. The transferred property is a dominant integrity, which determines the formation of other parts of a new image.

Children-readers are misled by an unusual perspective of a drawn object, an image of "cut" objects, part of which is left outside the book page, blurred space of the background, generalized silhouettes and strange facial expressions, strong black and white contrasts, complicated coloring of objects. Viewing this illustration, a child tries to guess what an artist painted. The survey showed that if a child views an illustration on his/her own, he/she distinguishes only certain objects, persons, but does not see the details and most importantly – he/she does not see a connection between separate elements in the composition or landscape.

At the age of 2-4, children learn to watch pictures with a simple plot, where the characters perform actions comprehensible for a child, i.e. the content corresponds to the child's life experience. Children recognize depicted objects, find similarity to physical objects, name them, and describe the properties (color, size, shape). The perception of the size and shape of objects, perspective and movement causes great difficulties. A child perceives the absolute size of the items, not realizing that two identical objects have different dimensions if they are drawn in perspective. A child starts to understand the perspective since the age of 5.

It is interesting for a 3-4 year-old child to impersonate a character and tell "about him/herself". Children overinterpret what they see in their mind, becoming co-authors of the artist, and try to show the movements and postures depicted in the illustration. At the age of 4, children are happy to guess to what familiar literary work the drawn illustration refers. This allows to take a closer look at the picture, correlate it with the text.

At the age of 4-5, the active perception of artistic expression means in the illustration is developed. Children start to pay attention to the qualities of characters, their posture, gestures, and facial expressions, distinguish details conveying the meaning of images. 4-5 year-old children actively name the colors of objects and since the age of 5 they start to understand color expression. The perception of landscapes with no actions is the only difficulty.

As practice shows, children are attentive to faces of drawn people. Emotional states of the characters depicted through facial expressions and posture resonate in the heart of a child, if they correspond to his/her personal emotional experience. Pictures of aggression, excessive anxiety, sadness cause a mirror response in a child and disrupt the sense of basic trust in the
6. Conclusion

A children's book is a visual-verbal unity, the organization including space and time of information, capable of complex influence on the mind and feelings of a growing person. The art of book develops the child's ability to master the oral culture and visual art in their harmony and semantic unity. The adults should create favorable conditions for the development of perception, thinking and imagination in the process of introducing children to the art of the illustrated book.

The predominance of visual-figurative thinking is typical for the perception of a literary work by children. A child first sees an object as if through the eyes of another person. In the children's book, such "other" persons are as follows: an author, artist and man who reads this book aloud. The vision of the object through the eyes of another person is the starting point of human consciousness, as the process of development of individual consciousness is a process of internalization of social experience. This is a generalized human experience accumulated by many generations. The perception already contains a prototype of perceiving the whole object before mentioning its parts. Generalization and the integrity of the human experience initially mediate the individual perception of a drawn object. Expressiveness, originality, interesting lay out found by the artist and embodied in the illustration help a child both to understand the author's intention and create his/her own picturesque world using the fantasy.

At the age of 3-5, in the child's linguistic consciousness the system of semantic coordinates is gradually developing. The methodology of the formation of the semantic aspects of speech of children of this age implies the organization of the complex psychological and pedagogical conditions that ensure the enrichment of active vocabulary in the process of "experiencing" different situations by a child, including in the perception of literary works and image viewing. The communicative organization of the statement, implying the creation of associative fields and transfers of word meanings into different semantic contexts is the main means of the development of the lexical-semantic system of a preschooler in the process of introduction of a child to the art of a children's book. Therefore, in the system of the developmental pre-school education, it is important to correctly develop creative tasks on reveling the meaning, which do not have a unique solution.

Such methods as observation, inspection, examining and comparing book illustrations contribute to the enrichment of speech and, above all, its lexical part, related to the understanding of the word meaning.

Acknowledgements

The article is based on the research that was carried out in the framework of Project 2.6. "Socio-cultural portrait of the modern child at different stages of childhood: age-related and individual peculiarities of the formation of the artistic perception and thinking" of the Program of Fundamental Research in FGBNU "IHOiK RAO".

The authors express gratitude to Alla Arushanova and Oksana Ushakova, well-known specialists in the sphere of preschool children speech development, for the development of the author's programs on speech development and education at the first level of education; for the attention to the issues of introducing children to the art of an illustrated book and the development of the semantic analysis learning techniques for children.

References

When training the multitask model, we initialize the shared parameters with a pre-trained Reddit model. We employ a distributed training system with multiple workers, where 95% of workers are used to continue training the Reddit task and 5% of workers are used to train the SNLI task. We extend prior work by exploring the effectiveness of representations learned from conversational data to capture more general-purpose semantic information. The approach is similar to Skip-Thought vectors (Kiros et al., 2015), which learn sentence-level representations through prior and next sentence prediction within a document, but with our prior and next sentences being pulled from turns in a conversation.

Among School Children. I walk through the long schoolroom questioning; A kind old nun in a white hood replies; The children learn to cipher and to sing, To study reading-books and history, To cut and sew, be neat in everything In the best modern way the children’s eyes In momentary wonder stare upon A sixty-year-old smiling public man. The fifth stanza, however, sees Yeats immediately returning to such self-analysis. This time, however, he considers it from the mother’s perspective: was it worth his mother suffering the pain of childbirth so that he could live his sixty-odd years on this planet? @inproceedings{Lykova2017LearningTS, title={Learning the Semantic Analysis by 3-5 Year-Old Children When Working With an Illustrated Book}, author={I. A. Lykova and Ekaterina Vyacheslavovna Boyakova and Olga V. Stukalova and O V Gaysina}, year={2017} }. I. A. Lykova, Ekaterina Vyacheslavovna Boyakova, +1 author O V Gaysina. Published 2017. Computer Science. The authors have investigated the problem of children's understanding of the meaning of a literary work as a visual-verbal unity. [...] Key Method Original research methods have been developed. A method of teaching the semantic analysis... Although children reach developmental milestones at different times, your child will likely achieve the following developmental milestones before he or she turns 5. 3- to 4-Year-Old Development: Language Milestones. If your child is not very talkative, that will likely change soon. More easily handle small objects and turn a page in a book. Use age-appropriate scissors. Copy circles (3) and squares (4). Draw a person with two to four body parts. Write some capital letters. Build a tower with four or more blocks. You may start to notice fewer tantrums when you leave your child with a sitter or at preschool. In addition, your 3- to 4-year-old is becoming more social. Your child may now be able to cooperate with his or her friends, take turns, and may begin to show some problem-solving skills.