



## Analysis of Children's Conceptions of Concepts at the End of Pre-Primary Education

### ABSTRACT

*The study presents the results of the authors' original research. The subjects of the research were authentic utterances of 5-6-year-old children at the exit from compulsory pre-primary education. They represented individual conceptions of the following concepts: interview, question, poem, fairytale, book, magazine, library, letter, reading, writing, and writer. The concepts were selected from the state curriculum (2016). The aim of the study was to present selected findings from research on children's conceptions of language and literary concepts. In the study, we provided answers to the research question. Which claims from psycholinguistic theories about narrower and broader conceptions of concepts are most valid in children's authentic utterances? The research strategy was quantitative. Children's authentic utterances were obtained through individual interviews. Each child answered four basic questions: what is it? What is it for? What would it be if it wasn't? How do you know that? The children's statements were content-analyzed and interpreted. The children in the research sample were dominated by narrower conceptions of linguistic and literary concepts (61%). The narrower conceptions of the concepts contained a pre-scientific concept of knowing their meaning. The content of their utterances predominantly distorted the objective meanings of the concepts. Children were less likely to interpret social interactions and least likely to use explanations of another, familiar concept. When they did explain concepts in broader terms (34%), they mainly relied on sensory experiences. Some children did not know or did not answer the questions (5%). The conducted research is a part of the VEGA 1/0505/24 project - Children's preconceptions about the phenomena of reading literacy.*

**Keywords:** *Children's Conceptions of Concepts, Psycholinguistic Theories, Content Analysis.*

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### I. Introduction

The main motive of the research that led to this study was to know how children at the end of compulsory pre-primary education explain the concepts from the content standards of the National Curriculum (2016) in the educational area of Language and Communication. We were interested in whether the content of the state curriculum was appropriate to the children's knowledge of the content of the concept with features of scientific conception when the concept belongs to the curriculum in pre-primary education. It is certainly a priority for curriculum designers and teachers that children do not learn content that is cognitively and socioculturally challenging. Adequate content prevents the situation that although they learn it, they end up having naive ideas about the content of the concept. They then come to primary education with them. After completing the teaching, children are supposed to understand the underlying scientific features of the content of the concepts. We consider research on children's conceptions of concepts to be beneficial. They provide up-to-date data on children's knowledge. These can be used to optimize the rigor and continuity of educational standards. Such

focused research has already been carried out. Preschool children's understanding of science concepts prior to entering grade 1 of elementary school was investigated by Monat (1973). She found out how children acquired selected concepts from the Curriculum of Educational Work for Kindergartens (1963). The survey included 20 children aged 5.4 to 6.10 in kindergartens. The concepts investigated were flower, snowdrop, violet, lily of the valley, tulip, rose, apple, bear, butterfly, storm, and river. The author used the interview method. She directed the questions to the characteristics of these terms. She stated that the children's knowledge of the given concepts was developed (according to Průcha, 2011). Qualitative research on children's conceptions of concepts in language and literacy was conducted by Babiakova (2017). With children who finished kindergarten the researchers conducted micro-interviews about the concepts of speech, language, book, magazine, reading, writing, television, radio, internet, sms, cinema, theatre, and museum. They noted that children apply preconceptions to judge and clarify reality. They take into account only some factors that are related to the concepts under study and mostly consider them from one point of view. These conceptions are clear and meaningful to children. They use them to explain reality in order to understand and navigate it in their own way. It is not important to children whether the idea is correct and accepted. It is enough that they understand it themselves. Lipnicka (2024) continued the above research. She published a research study on children's conceptions of pre-primary curriculum concepts in the field of symbols of Slovak statehood. In the group of concepts she included scientific concepts - capital, anthem, president, state, state flag, and state emblem. In the discussion, the author stated that these concepts are abstract for children at the end of pre-primary education. Concepts of symbols of statehood are mainly derived from children's experiences in everyday life. If children perceived them in different contexts, they explained them by signs of experienced reality. For children at the end of pre-primary education, narrower - pre-scientific conceptions of concepts prevailed. According to the findings, it is questionable whether teaching children about symbols of statehood is meaningful in kindergarten. Preschool children are supposed to learn about common concepts that are related to their immediate environment and childhood life. Concepts (words and symbols) are best known to the child through his/her activities, and it is in that context that concepts are able to be understood and used.

### **Psycholinguistic Theories of Concepts**

We based our research on psycholinguistic theories of broader and narrower concepts of J. Piaget, L. S. Vygotsky and P. Bloom.

In Piaget's theory we found justifications within the use of ideas in the child's preoperational thinking. The child in this period uses static figurative (reproductive) imagery. These recall already known and previously observed phenomena on the basis of sensory experience. In understanding concepts, the child relies on pictorial thinking. The child's ideas about reality in which his thinking has played a role (spontaneous ideas) are different from those formed according to the knowledge of persons who influence the child (scientific concepts). For our research, according to Piaget's theory, we have established criteria for categorizing concepts in the narrower and broader concepts. In the narrower conception, these are statements that represent children's spontaneous ideas about a concept when they distort objective facts. In a broader sense, these are scientific concepts (Table 1). This category includes children's utterances that reproduce sensory experiences (Piaget & Inhelder, 1997).

The development of scientific concepts was also investigated by Vygotsky. He regarded them as real, true, and unquestionable because they reveal essential regularities. He stated that the development of scientific concepts provides the key to the whole history of a child's intellectual development and "the investigation of children's thinking should begin from it" (Vygotsky, 2017, p. 68). Vygotsky explained his findings on the development of ordinary and scientific concepts in relation to schooling, the educator, and the child's learning process. He argued that scientific concepts undergo individual development. The child does not adopt them ready-made from adults. "The meaning of a word goes beyond thinking as such". The cognition of words takes place in conjunction with their meaning. It reflects the child's different types of perceiving and thinking consciousness and different ways of reflecting reality. "The word plays a central role in consciousness as a whole, not in its sub-functions" (Vygotsky, 2017, pp. 70, 72, 130). The child acquires the meanings of words (concepts) mainly through interactions with culture, in social activities and discourse, and in schooling. Therefore, school contents contain concepts that are products of culture. The child learns

by "negotiating meanings" so that they become his "cognitive property" (Pupala, 2001, p. 202). From the theory of concept development, we have selected concepts of everyday life for categorizing narrower concepts. This category includes children's utterances that interpret social interactions. In broader conceptual terms, these are scientific concepts in which children generalize from facts (Table 1).

In our research, we also tested claims from the theory of understanding the meaning of concepts (Table 1). Children's conceptions of concepts correspond mainly to "what things really are, not just what they appear to be" (Bloom, 2015, p. 151). "5-6-year-olds have the most difficulty with abstract concepts that have no association with any concrete forms, or their associations are mistaken or erroneously tied to the wrong meaning structures." On one side of the concept stands the notion (concept) and on the other the form. "A relevant conception of a word from the point of view of language acquisition must include all - exclusively those forms whose meanings are to be learned". These are scientific concepts, e.g. electricity, heat, etc. Scientific conceptions of concepts are very concrete in children (Bloom, 2015, p. 27). Children's conceptions of concepts are not always based on direct experience of real entities, but also on experience of their visual representations, e.g., books, films, television programs, videos, and other people's narratives. This also makes a difference in how a child explains the meaning of words. This is important information for our research and interpretation of the meanings of children's conceptions of concepts. That adults struggle to know how children understand the meanings of words (concepts) Bloom found both difficult and challenging to find ways to help clarify this. This uncertain path is one that we also embarked on in our research. The aim of the study was to present selected findings from research on children's conceptions of linguistic and literary concepts. In it, we answered one research question. Which claims from psycholinguistic theories about narrower and broader conceptions of concepts are most valid in children's authentic utterances?

### Research Design

We used a quantitative strategy in the empirical investigation. Using the Delphi method, we selected linguistic and literary concepts from the educational area of language and communication from the State Curriculum for Pre-primary Education in Kindergartens (2016): conversation, question, poem, story, book, magazine, library, letter, reading, writing, writer. Data were collected through semi-structured micro-interviews with 5-6-year-old children (88 children in total, 47 of whom were girls) who had completed compulsory pre-primary education (May-June 2023). The selection of children was deliberate according to specified criteria. Parents signed informed consent for the research. The children came from the classrooms of the teacher-researchers. The trained teachers asked each child four basic questions that could be easily developed in content for the child to understand. First, they asked for understanding of the concept: what is it? The second question was an application question: what is it for? The third question supported an evaluative stance: What if it weren't? And the last identified the source of the information: How do you know? We read the children's authentic utterances carefully, analyzing the content by coding. We then categorized them into concepts and meaning parts. The codes we chose according to our own judgment include (Table 1). They denoted semantically similar parts of the transcripts. We defined the meaning parts precisely to make it clear which utterances belonged to them.

Theory	Scientist	Categories of terms	Claims from theory - the semantic parts	Code
Theory of concept formation in child	Jean Piaget	spontaneous imagery (SP)	Children distort objective meanings	PSP
cognitive development		and scientific concepts (VP)	Children reproduce sensory experiences	PVP
Theory of the evolution of concepts in children	Lev of Semjonovič Vygot'skij	concepts of everyday life and scientific	Children interpret social interactions	VBP
			Children generalise facts	VVP

concepts (VP)				
Theory of understanding the meaning of concepts	Paul Bloom	perceptual terms (PP)	Children explain similarities and essences	BPP
		a relevant concepts (RP)	Children rely on concrete signs	BVP

Table 1. Claims from psycholinguistic theories with codes for content analysis

Legend to Table 1: Narrower concepts (spontaneous ideas, concepts of everyday life, perceptual concepts); Broader concepts (scientific concepts, relevant concepts).

We content-analyzed 781 authentic child utterances about selected linguistic and literary concepts. In this study, we interpreted the results to achieve the stated goal. It was one of the objectives of the combined research conducted by us in 2022-2023.

## II. Results

The results show which claims from the theories about children's narrower and broader conceptions of language and literature are most valid.

Concepts	Narrower concepts (Number of statements)			Broader concepts (Number of statements)			(N)	(N)
	Children distort objective meanings	Children interpret social interactions	Children explain essences similarities and	Children reproduce sensory experiences	Children generalise facts	Children rely on concrete signs	nowthe	Noanswer
Interview	17	7	7	2	3	7	14	21
Question	27	7	7	2	3	7	14	21
Poem	34	10	7	6	2	12	8	9
Fairy Tale	37	10	1	17	11	9	1	2
Book	25	9	12	6	18	13	1	4
Magazine	24	14	4	0	0	24	10	9
Library	24	2	5	0	22	14	10	11
Letter	29	9	13	7	9	13	3	5
Reading	27	11	4	3	11	12	9	10
Writing	32	11	10	11	2	11	3	8
Writer	55	8	8	0	5	14	15	7
Total statements	331	96	78	54	86	136	23	17
	505 (61%)			276 (34%)			40 (5%)	

Table 2. Number of child utterances for concepts in the narrower and broader concept categories

Categories of Claims from theory					
Theory	Scientist	terms	- the semantic parts	Code	
Theory of concept	Jean Piaget	spontaneous	Children distort	objective	PSP (331)

formation in child cognitive development		s imagery (SP) and scientific concepts (VP)	meanings  Children reproduce experiences	sensory PVP (54)
Theory of the evolution concepts in children	Lev of Semjonovič Vygotskij	concepts of everyday life (BP) and scientific concepts (VP)	Children interpret interactions  Children generalise facts	social VBP (96)  VVP (86)
Theory of understanding the meaning of concepts	Paul Bloom of	perceptual terms (PP)  a relevant concepts (RP)	Children explain essences  Children rely on concrete signs	similarities and BPP (78)  BVP (136)

Table 3. Number of statements in categories of propositions selected from psycholinguistic theories  
 Legend to Table 3: Narrower concepts (spontaneous ideas, concepts of everyday life, perceptual concepts); Broader concepts (scientific concepts, relevant concepts).

### III. Discussion and Conclusion

Children's conceptions of concepts in the area of Language and Communication arise mainly from experiences in everyday life. We assume that if children's practical experience with the content of a concept is insufficient, then their explanations are pre-scientific. The narrower conceptions of language and literature concepts dominated among the children in the research sample (61%). Narrower conceptions of concepts contained pre-scientific concepts. The content of the children's utterances predominantly distorted the objective meanings of the concepts. This gave us the most confirmation of the statement from Piaget's theory. For example, this is true in the children's utterances in the concept of a letter: „A letter means to let people know on a sign, for example, whether we can go, whether there is a pedestrian crossing - we have to pay attention. For example, the concept of question: I mean, somebody will say hello and then I won't know what it is so then I'll know. If we were bored, we would ask for something, then they would give it to us.“ We realize that the concepts are abstract but often used in everyday life and children are supposed to learn about them in kindergarten. Vygotsky's theory of sociocultural influences on the understanding of concepts is confirmed here. For example, children explained concepts through experiences with a particular environment: "We can talk on a walk, on a trip and on the beach when we get to know each other. A question means the teacher asks, if you don't answer her you'll be detention. A poem is the kind of thing we learn in kindergarten. A fairy tale is that when there are some kids at home, you watch TV with such characters. A book is that you learn to read and a book means that you can still read, that you wouldn't be ashamed at school. Alex, my brother reads from a book at school and at home. A magazine is such a paper book and when you are at school you write written and printed letters there.“ Writing: there you write with a pen in the post office."If they explained concepts in broad terms (34%), they relied mainly on sensory experiences. For example, "I saw in the library. In the nursery we have such magazines for children. I saw a magazine for the first time when I was little then too. That was my mother telling me that when I go to school, I will learn to read something. My cousin Lenka told me she goes to school. That we listen to what the teacher says in kindergarten.“ Children were less likely to interpret social interactions in the statements and least likely to use explanations of another, familiar concept that was similar in content or wording to the concept they were explaining. Some children did not know or did not answer the questions (5%). Most of the statements that



generalized facts were about the concept library (22 statements). Children relied most on specific features for the term magazine (24 statements). They reproduced sensory experiences the most on the term fairy tale (17 statements).

The results presented are valid for the children in the research sample. We are aware that several variables influenced the children's statements and therefore the research described has limited objectivity. In any case, we consider the experience gained valuable not only for us as researchers, but also for future state curriculum reform and further research activities. We will continue our research in the process of solving the project VEGA 1/0505/24.

Children's preconceptions about the phenomena of reading literacy. We will publish further research findings on an ongoing basis. We will give a comprehensive report on the research results in a planned scientific monograph in 2026.

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