1. THE COGNITIVE LINGUISTIC VIEWPOINT

Language and cognition

a) The modular approach

- Language as a separate module and subsystem of cognition.
- Universal grammar and the parameter theory (N. Chomsky).
- Part of a person’s innate language aptitude is the so-called universal software package of principles and rules which is activated by the influence of external language data.

What innate language principles and rules do we have empirical evidence for?

b) The holistic approach

- Language as one of the manifestations of cognition.
- Cognitivism (J. Piaget).
- The correlation between linguistic and general cognitive principles.

What is the correlation between cognitive and language structures in the given stage of cognitive development? Do we have empirical findings for it?

2. THE DEVELOPMENTAL LINGUISTIC VIEWPOINT

Language and cognition in the ontogeny of speech

2.1 Research into a child’s word formation

- Qualitative linguistic and psycholinguistic research.
- Evidence of the influence of internal biological factors and interactions with the environment in the speech development of a child – in the dimensions of both a modular and holistic approach to the language-cognition relationship.
2. THE DEVELOPMENTAL LINGUISTIC VIEWPOINT

2.1 Research into a child’s word formation

2.2 Study of children’s narratives

**a) The modular character of the language-cognition relationship**

- In comparison with an adult’s vocabulary, a child’s is limited and does not yet contain all conventional words.
  - Children thus naturally interpret the world through creation of nonce-formations. Even though they have never heard these words in their own environment, they still form them spontaneously according to models existing in language.
  - Children therefore have implicit knowledge of word-forming principles and rules. Their innate word-forming mechanism is activated under the influence of language data received by the child in their environment.
  - Their lack of vocabulary is compensated for by the innate mechanism of word-forming rules (Pinker’s language-instinct hypothesis?)

- Language principles rooted in the cognitive facility of the child as part of its genetic make-up:
  - the implication principle – creation of words on the basis of the logic-meaning connection (A ⇒ B ⇒ C...);
  - the analogy principle – creation of words according to a word-formation model, even if the root word does not exist;
  - the principle of form analogy – hypergeneralization (overregulation) – universalization of morphological forms

**b) The holistic approach of the language-cognition relationship**

- Connection between cognitive and word-forming structures. For example:
  - An activity and purpose-based reflection of the world as a central organisational principle in the mental dictionary of a child about to begin school
    - the explicit actionality of children’s nonce-words
      - a verb as a naming resource
      - a verb as a product of creation

**2.3 The cognitive approach towards the development of a child’s language ability**

(Using Slovak both as first and second language)

**THE DEVELOPMENTAL LINGUISTIC VIEWPOINT**

**2.2 Study of children’s narratives**

- the constructivist approach to analyzing narratives (existence of storytelling patterns in a child’s consciousness – the story grammar theory)
- examining developmental aspects of the narrative mode of thought (Bruner, 1986) – how words become worlds
- assessment of types and levels of narrative

Linguistic narrative signs (e.g. ways of linking statements, variability of connectives, discourse markers etc.) reflect the cognitive development of the storyteller.

- awareness of time and causal relations is a cognitive assumption for creation of true narratives at the preschool/early school age
- the complexity of a child’s narrative grows with the ability to understand the intentionality of human behaviour and the ability to enrich the story with value judgments
3. THE COGNITIVE EDUCATION VIEWPOINT

Language and cognition in education (based on theories of Vygotsky, Feuerstein, Sternberg, Jensen, and Tzuriel)

3.1 Cognitive stimulation of the language abilities of a child from a socially disadvantaged background

The stimulation programme involves developing the following three cognitive functions:

- making comparisons
- verbally creating a category
- categorizing

**General aims** of the stimulation programme:
1. To compare shared and differentiating qualities of objects.
2. To put objects into the same concept class on the basis of common qualities.
3. To give the class of objects a concept name and create a mental representation of the concept category.
4. To differentiate concepts in one conceptual category from other concepts.
5. To class concepts belonging to more several concept categories according to defined criteria.

The methodology used in the stimulation programme covers the three basic phases of the mental act forming part of a child’s learning processes (Feuerstein – Hoffman, 1996; Jensen, 2009):

**Phases of the mental act applied during the stimulation programme**

1. **INPUT**
   - Reception Phase (obtaining information; activation of the child’s knowledge and cognitive structures);

2. **ELABORATION**
   - Transformation Phase (creating relationships with information already within the pupil’s knowledge and experience; the learning process);

3. **OUTPUT**
   - Communication Phase (communication of results of thinking; application of developmental knowledge schemes and cognitive functions).

**In the elaborating phase** of the mental act we have drawn from the model of concept teaching (Concept Teaching Model; Hansen – Hem – Sønnesyn, 2002), which is based on the following cognitive approaches when deducing concepts or conceptual categories:

1. Identifying the concept category on the basis of common properties of concepts.
2. Discriminating the concept category from other concept categories on the basis of comparing shared and different properties.
3. Generalization of shared properties of concepts of a given conceptual category.
4. Verbalization of the relationship between the dominant concept and subordinate concepts.
### 3.2 Illustration of the development of cognitive functions while developing language abilities

<table>
<thead>
<tr>
<th>Cognitive functions</th>
<th>Curriculum based task</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attention</strong></td>
<td>Put the pictures in the boxes as I tell you: <strong>dom – domček – domisko</strong></td>
</tr>
<tr>
<td><strong>Evoking from the Memory</strong></td>
<td>What do things in the pictures have in common? How are they different?</td>
</tr>
<tr>
<td><strong>Verbal Tools and Concepts</strong></td>
<td>What are the things that have been put into the biggest? Why have you put them in that order? Now put them the other way round, from the smallest to the biggest. Why have you put them in that order?</td>
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<tr>
<td><strong>Comparative Behavior</strong></td>
<td>Put the pictures in order going from the smallest to the biggest. Why have you put them in that order?</td>
</tr>
<tr>
<td><strong>Seriation</strong></td>
<td>Put the pictures in order going from the smallest to the biggest. Put the pictures in order going from the smallest to the biggest. Why have you put them in that order?</td>
</tr>
<tr>
<td><strong>Symbols and Signs</strong></td>
<td>Put the pictures in order going from the smallest to the biggest. Why have you put them in that order?</td>
</tr>
<tr>
<td><strong>Analysis – Synthesis</strong></td>
<td>Point to the biggest house. What do we call it? Point to the smallest house. What do we call it? Point to the house which is neither big nor small? What is it called? Repeat: <strong>dom – domček – domisko</strong></td>
</tr>
<tr>
<td><strong>Inferential Thinking</strong></td>
<td>Put them in order and say that the following are each called: neither a small nor a big house... small house... big house...</td>
</tr>
<tr>
<td><strong>Verbal Tools and Concepts</strong></td>
<td>Point to domisko, point to dom, point to domček.</td>
</tr>
<tr>
<td><strong>Classification</strong></td>
<td>Now put into the boxes the following groups of three: sochor – sochorček – sochorisko kúdol – kúdolček – kúdolisko (we deliberately choose less familiar words to ensure understanding of the modifying function of the -ček and -isko suffixes)</td>
</tr>
<tr>
<td><strong>Abstraction of Cognitive Categories</strong></td>
<td>(jumbled up pictures of groups of three various objects: small – medium – big; small and big are expressed using the –ček and –isko suffixes) What can you see in the pictures? Name them. Choose from the pictures things which are neither small nor big. Say what you have chosen. Now choose objects which we would refer to using the –ček suffix. Say what you have chosen. Choose pictures which we would refer to using -isko. Say what you have chosen.</td>
</tr>
<tr>
<td><strong>Generation of Mental Transformations</strong></td>
<td>How many groups have you divided the pictures into? How can we class these separate groups? If you hear –ček at the end of a word, what does it mean? If you hear –isko at the end of a word, what does it mean? Why have you divided the objects in the pictures in this way?</td>
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<td><strong>Categorization</strong></td>
<td>What can you see in the pictures? Name them. Choose from the pictures things which are neither small nor big. Say what you have chosen. Now choose objects which we would refer to using the –ček suffix. Say what you have chosen. Choose pictures which we would refer to using -isko. Say what you have chosen.</td>
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<td><strong>Metacognition</strong></td>
<td>How many groups have you divided the pictures into? How can we class these separate groups? If you hear –ček at the end of a word, what does it mean? If you hear –isko at the end of a word, what does it mean? Why have you divided the objects in the pictures in this way?</td>
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<td><strong>Integration, Bridging</strong></td>
<td>How many groups have you divided the pictures into? How can we class these separate groups? If you hear –ček at the end of a word, what does it mean? If you hear –isko at the end of a word, what does it mean? Why have you divided the objects in the pictures in this way?</td>
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**References**