THE DEVELOPMENT OF THE SCIENTIFIC AND COMMON TERM

DVOŘÁK Ondřej, ČR

Abstract

Terms are important means of communication among people and it is necessary to pay high attention to the creation of new terms. This report is focused on the development and creation of common and scientific terms with children.

Key words: child, common term, scientific term.

VÝVOJ VĚDECKÉHO A BĚŽNÉHO POJMU

Resumé

Pojmy jsou důležité prostředky komunikace mezi lidmi a je nutné věnovat tvorbě nových pojmů vysokou pozornost. Příspěvek zaměřujeme na vývoj a utváření běžných a vědeckých pojmů u dětí.

Klíčová slova: dítě, běžný pojem, vědecký pojem.

Introduction

The contemporary philosopher Jerry Fodor insists on the fact that the terms are to a great extent inborn, however, the majority of scientists are dealing with how we learn the terms - whether this happens by experience or by the help of other terms.

In the 1970s and 1980s the philosophers used structures that resembled terms which were named patterns. These patterns did not stand for the essence of the term but for what was typical for them. Philosopher Hilary Putham improved that it is important to see stereotypes in the termss, not the definitions of conditions (4, 2001).

In the classes, terms can be submitted as following:

1. By the help of definition – terms are able to create a hierarchic tree of terms.
2. Termss are based on rules – it does not deal with the relationship of the term to the term but the relationship of the term to the world.

The compression of the information into a term is the most beneficial where it can be used in new situations. Once the term has been acquired, the children implement it into their system of terms (according to the type, to the easiness). This process can be divided into two stages: comparison and derivation. Therefore the terms can be inborn, formed on the base of examples or derived from other terms.

Should a new object receive the highly concise characteristics, it is important to compare everything that we know about it with the characteristics of other simillar terms. Once the term matches the situation, the derivation can be started (4, 2001).

The common and scientific terms have their strong and weak sides. The weakness of the common terms is, according to the data of the research, their inabillity of abstraction and the haphazard operations with them. The next token is the incorrect usage of these terms. The weak side of the scientific terms is their verbalism which is caused especially by the insufficient saturation of the concrete meaning. The strong side is the ability to use the „readiness for action" (5, 2004).

1 The scientific term and its concept

According to J. Stoffa (2000), the term is the focal category of knowledge and understanding. It is related to a particular object and it has an abstract character, it is what is called

abstractum. It differs from the object itself by reverberating only its cruisal features. The sense of abstraction of the unsubstantial traits and features of the term is its differentiation from the other terms. Each scientific discipline has been built on a system of terms. The word term is used in various branches and in special dictionaries its various definitions can be found (1, 1983).

The authors Škoda and Doulík (2009) are talking about the child's concept as the only means of understanding that is available for a child. By the help of these tools the child decodes the reality which it is surrounded by and whose part the child is. These tools are unchangeable and if a teacher wants to have his or her lessons efficient, it is necessary for him or her to work with these tools in the whole spectre of activities. These are unthinkable without the direct cooperation of the teacher.

The children's concepts are influenced by all the experiences and factors which have been affecting them in their entire lives. Among the factors eg. the exogenic factors (social, economic, cultural, religious, ethnical etc.) or the endogenic factors (the factors going out of the individual psychical and biological characteristics) can be ranked. The pupil who is acquiring terms is also implanting his special features according to his own way of thinking into them, he is creating his own concept of the term then. It is necessary for the pupil to achieve a certain level of usage of the common term in order to be able to start acquiring the scientific terms (3, 2009).

2 The development of the common and scientific terms

The strange development of the scientific terms is conditional on the determinative and the repeating moment in whose procedure the primary verbal determination is approved. This verbal determination can be on particular conditions descending to the concrete, to the term, whereas the development of the common terms is happening outside the system. It is going to the generalization. Nevertheless, we have to take into account that the meanings of words are developing continually. So, in the moment when the child acquires a new word connected to a particular meaning its development does not stop because the child is going from the elementary type of generalization to the higher and higher types of generalization only in the process of its development. That is how it finishes the process of creation of real terms.

The process of development of terms or meanings of words itself requires the development of functions: prepense attantion, logical memory, abstraction, comparison and differentiation (5, 2004).

The creation of the scientific terms with children can be seen as a cooperation between the pupil and the teacher. During this cooperation the transmitting of knowledge from a particular field is realized (3, 2009). This is a kind of collaboration where the higher psychological functions of the child are ripening with the help and assistance of an adult. In this surveyed field, the relativness of the causal thinking and the maturing of a particular level of consciousness of the scientific thinking is shown. The earlier ripening of the scientific terms can be explained by the collaboration of the child and an adult in form of transmitting of the terms to a child in a particular system (5, 2004).

According to Vygotskij (2004) several basic questions can be posed: How do the scientific terms develop in the intellect of a child coming through school classes? In what relationship are then the processes of learning itself and acquiring of knowledge and the processes of the inner development of the scientific term in the child's consciousness? Do they match only if they are two sides of the same process? Is the process of the inner development of the term followed by the process of teaching like a shadow follows an object which is creating it without crossing each other but imitating and repeating its movement exactly – or are there far more complicated and more delicate relationships that only can be explored by special investigations? As for all these questions, today's child psychology provides us only with two marginal answers:

„První z nich spočívá v tom, že vědecké pojmy nemají vůbec žádnou vlastní vnitřní historii, neprocházejí procesem vývoje ve vlastním slova smyslu, ale jednoduše se osvojují, jsou vnímány

v hotové podobě na základě procesů chápání, osvojování a nabývání smyslu, že se jich dítě zmocňuje v hotové podobě nebo je přejímá ze sféry myšlení dospělých a že problém vývoje vědeckých pojmů má být vyčerpán problémem vedení dítěte k vědeckému poznání a k osvojení pojmů.“ (5, s. 77). Thus the first answer denies the existence of the process of the inner development of terms acquired at school. The second answer consists in the following: *„Vývoj vědeckých pojmů v myšlení dítěte procházejícího školním vyučováním se v podstatě ničím neliší od vývoje všech jiných pojmů formujících se v procesu vlastní zkušenosti dítěte, a že tudíž samo rozlišování obou těchto procesů je nesprávné.“* (5, s. 78).

The first answer to the questions is practically the most wide-spread opinion which has created the base for the theory of the school education and the methodics of particular disciplines. The incorretness of this opinion is proved however with its very first submitting to the scientific criticism. The second answer points out that from a certain point of view, the development of the scientific terms has been built on the same principle as the development of the common terms in life (5, 2004).

Conclusion

When studying the scientific literature concerning this issue it reveals that the object of almost all entire investigations was the study of the common terms. The basic patterns in the development of the child's terms have been found out from the common terms of the child's life. These findings have been transmitted, without any further examinations, into the field of scientific terms which have been formed under different inner conditions. For some inverstigators, one question has been arisen - the question about the advisability of such an extended interpretation of the investigations outcome which is determinated by only one single field of child's terms. The investigators started to deal with this issue and they have differentiated the children's ideas about reality in whose development the decisive role is presented by their own child's way of thinking from those which have been arisen by the influence of the people in their surroundings (5, 2004).

Literature

1. POŠTOLKOVÁ, B., ROUDNÝ, M. a TEJNOR, A. *O české terminologii.* 1. vyd. Academia: Praha, 1983. 132 s. ISBN neuvedeno.
2. STOFFA, J. *Terminológia v technickej výchove.* 2. vyd. Olomouc: Univerzita Palackého v Olomouci, 2000. s. 161. ISBN 80-244-0139-8.
3. ŠKODA, J. a DOULÍK, P. *Dětská pojetí: teoretická východiska a metodologické aspekty.* In Výzkum výuky: Tematické oblasti, výzkumné přístupy a metody. 1. vyd. Brno: Paido, 2009. s. 117-143. ISBN 978-80-7315-180-5.
4. THAGARD, P. *Úvod do kognitivní vědy: mysl a myšlení.* Praha: Portál, 2001. ISBN 80-7178-445-1.
5. VYGOTSKIJ, L. S. *Psychologie myšlení a řeči. Výbor z díla.* Praha: Portál, 2004. ISBN 80-7178-943-7.

Through the financial support of this project with the registration number (PdF_2011_034) was created this article.

Assessed by: PhDr. Jan Lavrinčík, Dis.

Contact Address:

Ondřej Dvořák, Mgr.
Katedra technické a informační výchovy
Pedagogická fakulta UP, Žižkovo náměstí 5, 771 40
Olomouc, ČR, tel. 585 635 803
e-mail: dvorakondrej7@seznam.cz