STOFFA Ján
Selye J. Egyetem. Komarno
NikaStoffova@seznam.cz

THE IMPORTANCE OF THE TERMINOLOGY IN SPECIALIST EDUCATION

It is a typical feature of our times that the human knowledge rises in an accelerating manner. Only in a relative narrow field of human knowledge such as chemistry is the amount of known individual chemical substances was estimated of the order millions and each week appear more than ten thousands new substances in one week, i. e. more than thousands for each day. All objects of human knowledge must be designated. Even the most developed languages have not enough their own words to designate such huge amount of new objects. The problem is solved by several ways, e. g.:

- by dint of the **terminologisation of ordinary words**, i. e. by giving them a more precise meaning (e. g. *memory*);
- by dint of **borrowing a term from an another branch** and giving him an another meaning (e. g. *icon* from the field of pictorial art to *icon* in the ICT);
- by dint of **borrowing a term from another language** in an anadapted (e. g. *pick-up* both in English and Hungarian) or adapted (e. g. *software* from English to *szoftver* in Hungarian) form;
- by dint of true **translating the meaning a foreign term into the possessing language** (e. g. English term *addressing* versus Hungarian term *címzés*);
- by dint of **creating a polyverbal term with a rigid word order** (e. g. Hungarian term *hat tagból álló* as the equivalent of English term *sextet*);
- by dint of **creating an abbreviated term form** (e. g. *modem* from **mo**dulator - **dem**odulator);
- by dint of **creating a new term (neologism)** (e. g. *videokazetta*);
- by **creating a term compound** (e. g. as the equivalent of English term *internet access* Hungarian term *internetkapcsolat or internet fozzáférés*).

The creation of new term cannot be chaotic, as in other case the professional communication would be very complicated, the acquiring of the terminology very difficult for the human memory, and the same is valid for an acquiring of the terminology in educational processes. Therefore before more than half century a special scientific discipline – **general terminology** was created. The Austrian scientist E. Wüster is regarded as founder of the discipline, the author of the pioneer monograph (1). Fundamentals of the discipline were published in many publications, e. g. in (2, pp. 11–42), (3), where were cited many other monographs. The discipline has elaborated general rules how to create new terms in a systematic way. Moreover also many international standards were elaborated for the field of terminology, e. g. (4). As was shown in (5) terms have a very important role in each professional commu-

nication process. Therefore the acquiring of terminology has an important role for correctness and effectiveness such communication and it must be paid to it enough attention and time in each education process.

The aim of the contribution is to characterize the problematic of acquiring the scientific terminology in a most general way and to show its special aspects and values.

Term, terminology, terminological system

The notion **term is defined as a name of a notion in the terminological system of a science or professional branch.** Generally is a term considered as the basic unit of logic thinking. It has always an abstract nature. Therefore a name of a concrete object cannot be considered as a term. The same is valid for personal names, geographical names, etc.

Terminology is defined as the set of terms of a science branch. Usually a terminology is a mixture of terms and names in the practice and many specialists does not difference notions and names.

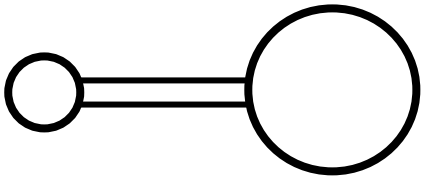
The terminological system is defined as a set of terms of a science or professional branch which is systematically ordered, i. e. in which system relations between terms are expressed. The relations are of different nature. The most important are the hierarchical ones.

It is generally accepted that each science branch has a right to have its own terminology. No terminological is fully autonomous as a consequence of existence of interdisciplinary relations and each contents many terms from other disciplines.

Many users of terminology do not distinguish between terms and notions and reduce a terminological system only to a collection of words with a special meaning. In fact each terminological system substitutes the notion system in the communication process. We can consider terms as communication equivalents of notions (5). A communication with definitions of notions instead terms would be extremely nonrational, slow and uneconomical.

The relation between terms and notions

In spite that the relation between terms and notions is well described in terminological literature, many specialists ignore it. In our last work (6) we have illustrated the relation with the **model of an unsymetrical dumbbell**.



The whole dumbbell corresponds to a notion. The left smaller side of the dumbbell corresponds to its term and the right one to the content of the notion which must be expressed by a definition. The essential lower weight of the term is illustrated by small stake of the left side on the total weight of the dumbbell. The base for the statement lies in that, that a term generally does not express the content of the notion. Only the best created terms express some essential element of the notion content, but never the whole content. Many of real terms are for users total non-understandable (especially terms of foreign origin) and some of them inform about the content of the corresponding notion incorrectly (e. g. *dielectric constant* of a real substance which is no physical constant but a quantity depending generally on several factors, e. g. on the temperature, intensity and frequency of electrical field). On the other side each correctly created definition expresses the content of a notion enough fully. Moreover it expresses also the system relations of the notion as a rule. The last function can the term to discharge only seldom, e. g. by use of systematic prefixes or suffixes (e. g. *subsystem / system, rendszer /alrendszer*).

Relations between terms in a terminological system

A terminological system differs from a disordered terms set by having many system relations between his terms. The most frequent relations are the hierarchical ones:

- The **relation of superiority** (e. g. the notion *programming* is superior to the notion *object programming)*;
- The **relation of subordination** (e. g. the notion *notebook* is subordinated to the notion *portable computer*, and similarly *portable computer* is subordinated to the notion *computer*)**;**
- The **relation of coordination.** The relation is valid between notions of the same hierarchical level (e. g. *monitor, mouse, plotter, scanner,* etc. as partial objects of hardware).
- The first two relations are regularly used in definitions of notions with the help of the nearest hierarchically higher notion.
- There exist also other relations between the notions within a terminological system, e. g.
- **Relation whole and part** (e. g. *subprogram / program*);
- **Relation cause and effect** (e. g. *action / reaction*);
- **Relation of equivalence** (typical for synonymous termx, e. g. *check-out program / diagnostic routine / checking routine*);
- **Relation of opposition** (e. g. *continous / discontinous);*
- **Relation activity – result of the activity** (e. g. *production / product*),
- **Relation reality – possibility** (*computed - computable*), etc.
- All the relations can significantly facilitate the acquiring processes of terms in education processes.

Transformation of the terminological system of a branch into didactical terminological system of an instructional discipline

Almost each instruction discipline is a transformation model of one or more science branches. Therefore a terminological system of an instructional discipline is as a rule a transformation of one or more terminological systems of the branches. The transformation includes:

- **Essential reduction of the number of terms.** The reduction is limited because of mental development of an educatee. The number of new acquired terms for one lesson is strongly limited and even in the highest grades does not exceed the order of ten;
- **Essential reduction of the number of synonymous terms and exclusion of the pseudo synonymous terms**; The optimal reduction of the number of synonymous terms is two, where the first is a national and the second an international one (e. g. *gold / aurum*). The pseudonymous terms such as commercial names, slang names, etc.) have not to be acquired;
- **Elimination foreign terms from the system;** The elimination concerns especially to neologisms which have problematic meaning, and the orthography and pronunciation of which is not known to the user, and foreign terms of low frequency as well;
- **Preferring of one-word or univerbized terms**; The requirement is based on the fact that such terms are easily learnable;
- **Preferring national terms instead of international ones**; The requirement is based on the fact that national terms are generally more understandable than foreign ones;
- **Elimination of terms which are not to be acquired.** The requirement is based on the limited number of new terms which are to be acquired within one lecture;
- **Elimination of terms which have been acquired already**, e. g. in previous instruction. The requirement is based on the fact that it has no sense to acquire the terms which have been acquired already in instruction of previous disciplines. It requires from an educator to make an exploration of the actual situation.

The selecting the terms for acquisition and elimination represent the content of **terminological analysis of the instruction discipline**.

Values of terminology in education

The acquiring of terminology in an instructional discipline is not an end in itself. Independent of the attitude of an educator towards terminology it has many objective values. Some of them were listed in the work (7), where was shown that some of them can be considered as instruction goals. We recapitulate some of them:

- **Communicational value**. The value can be considered as the most important, as the terms were deliberately created for rational communication as communication equivalents of notions. In the case of unfamiliarity with a

corresponding term, the communication becomes longer, less exact and non-ambiguous and retarding the information flow.

- **Cognition value**. The values lies in understanding that in spite of that terms are mostly national, i. e. specific, the content of notions is international, i. e. common for all nations. Also in understanding the sense of words, relations between notions, ways of creation of particular terminological systems, in more deep learning the notion system of the particular discipline or a science and the system and structure of the mother language, etc.
- **Educational value**. The value consist in education for using the correct terms instead vague words, adequate expressing own thoughts, for sparing the time in the communication, for deepening a respect to the mother language, for language culture, etc. The acquiring of terms improves memory of educates, their knowledge of orthography of terms, their pronunciation, enlarges their vocabulary, etc.
- **Intercultural value**. The value is based on the fact that the terminology of each field is a mixture of national und international terms an that more terms are of a hybrid nature, i. e. consist of international and national term elements (e. g. Hungarian terms *videomeghajtó*). The common terms or term elements are an exhibit of intensive international co-operation in the past and shows that even small cultures or individuals can add to world terminological database (e. g. Australian aborigines by the term *boomerang*, or brothers Čapek (Joseph as the author and Charles as the introducer and first user the term *robot*).
- **Rationalization value**. The terminology rationalizes the human communication and shortens the information flows generally. Many multi-word terms are abbreviated in several forms (abbreviations, symbols, acronyms, univerbized terms, compounds, etc.). Continuously the unification of terminology in an international, and even world-wide range takes place, especially by standardization of terminology.
- **Methodological value.** The value is based in acquiring intellectual skills, e. g. skills for:
  - unaided solving terminological problems in the praxis;
  - distinguishing terms from ordinary words or substandard words;
  - identifying the basic form of term, which is only suitable for key words and for searching terminological information from terminological standards, specialized vocabularies, lexicons, encyclopedias, etc.;
  - rational abbreviating of terms without a lost of unambiguousness;
  - clarifying the sense of terms of foreign origin by adding a etymological information;
  - searching the terminological information in different sources and use a critical attempt depending on the quality of the particular source;
  - decoding different abbreviations, acronyms, symbols etc;
  - decoding homonymous terms by help of a context.

Special aspects of terminology

Each terminology and also each term has several special aspects. The most significant and frequent are:

- **Etymological aspect.** The aspect reflects the origin of a term and his way into a terminological system of a discipline.
- **Historical aspect**. The aspect reflects that terms are determined by the history of the development of human civilization and many of them can arise only in particular historical phase of its development, can be of a permanent, but also of a temporary life.
- **Linguistic aspect**. The aspect reflects the fact that each term consists from elements of a language and must be integrated in its system organically, has a written form and a spoken form as well.
- **Information aspect.** The aspect have only terms, which by its meaning and word structure give to a user some lpartial information about the content of the corresponding notion. Some terms are confusing in national (e. g. all national homonymous terms), some in international communication (e. g. *silicon* in English is the term for the chemical element silicium (Si), the Slovak term *silikón* and Czech term *silikon* correspond to a compound of Si).
- **Dynamical aspect.** The aspect reflects a dynamic of development of a discipline or science. The dynamic is expressed by a time of doubling of the knowledge in some field. The branches with most dynamic development double also the total amount of its terms through the doubling time. The time is only one year in extreme causes. The branches have many problems with neologism terms.
- **Interdisciplinary aspect**. The aspect reflects the fact, that the no terminological system can be fully independent on the systems of other disciplines or science branches. Each system has many common terms with other branches, especially with basic or related branches. The same terms correspond oft to different notions in other disciplines and can collide in the same terminological system as homonymous terms.
- **Standardizational aspect.** The aspect possesses terms which are recommended for using in national or international terminological standards;
- **Aspect of newness**. The aspect is present in the case of terms which are fully new (neologisms) and are not established;
- **Aspect of obsolescence**. The aspect is present in the case of terms which the related community consider as no more suitable for using because of some cause;
- **Aspect of incompatibility**. The aspect possesses foreign non-adapted terms which do not include in the particular language system organically.

Also the aspects can be used for improving the quality of educational processes.

Conclusions and recommendations

As was shown in previous parts the acquiring of terminology in education processes has an enormous great significance and offers many acceptable values. Therefore each discipline should take care about its terminology and each educator should pay more attention to terminology of his discipline. Also more research of terminological problems and creating suitable terminologically oriented publications should be carried out.

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