METHODOLOGY USED IN ORDER TO BUILD KEY-WORDS DICTIONARIES IN THE FIELD OF OCEANOGRAPHY, MARINE BIOLOGY AND AQUATIC POLLUTION MONITORING

By

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Abstract

The author has made a key-words index selection, the result of a specialized library documents indexing. This was to create some specialised indexes useful in the field of oceanography, marine biology and aquatic pollution monitoring. As a final result there is a collection of bilingual and trilingual dictionaries. There is not a strict hierarchic order, so that a better flexibility is allowed for the retrieval of the documents. The methodological procedures described are referred to the monographics and serials keywords selection indexes, which make up the dictionaries. The articles indexing (13,000 documents ca.) is still in progress.

Key Words

Indexing, oceanography, marine biology, specialised dictionaries/vocabularies.

Introduction

The actual library database is a mixture between the Rica Cataloguing rules, the ISBD and the Database 4 software. The aim was to get the printed results not only by Author order, but also by key-words list. The monographics lists is bilingual (Italian/English), whereas the serials and articles lists are trilingual (Italian/English/French).

In the near future all data will be changed in a Windows, in order to use them on-line, a third language (French) has been added to the key-words indexes.

Methodology

The documents indexed have made up roughly three sub-indexes (Ref : Sigle Report CNR-ISTTA no 21 dd 21-11-91):

a) Key-words index selection (of documents listed)
b) Taxonomic index (of documents owned by the library and listed)
c) Guidelines and subject categories indexes.

The first two subindexes are bilingual (Italian/English), the third one in English only. This because many terms adopted have been selected from the ASFA indexes and ASFA Thesaurus, from the SIGLE Manual 2nd edition part (Subject to category list).

Concerning the taxonomic index for the scientific terminology classification (taxa, species, etc) the following have been used:

D'Ancona U.-Trattato di zoologia.UTET, Torino, Italia, 1953.

Sarà M.-Zoologia. Cacucci, Bari, Italia, 1976.
Cognetti G., Sarà M., Magazzù G.-Biologia marina. Calderini, Bologna, Italia, 1999.

The reasons why the key-words have been used are as follows:

a) A free approach (not hierarchic) of terms and terminology
b) A different type of user (students, researchers, local users etc)
c) The lack of up-dated information science and IT technologies, plus the lack of personnel to use a Dewey Decimal Classification systems
d) Owing to the type of user, some are not qualified to use the library fully
e) Many documents have an historic value only
f) Some books are rare editions (from 19th century down to 16th century 'in folio' editions)

The third sub-index is mostly a handy manual for non-specialised users, who need a comprehensive guide and at the same time an easy one for information retrieval.

For the linguistic form of the key-words terminology there have been used mainly:

Italian language: Dizionario Palazzi-Dizionario Garzanti
English language: McGraw Hills, Hazon, Webster's Collegiate Dictionary
French language: Dizionario Zanichelli.

From the Key – Words Index to the Key-Words Dictionary

Clash between theoretical aspects and software limitation.

The key-words dictionary is the final and most developed stage of the key-words thesaurus which undergoes a continuous updating and enlarging.

The dictionary allows a research from a main subject to a specific one and *vice versa*, retrieving the terms associated to the same subject.

In the field "CHIAVE" (=Key-word) under the key-word ALGAE you can find the subject or type or phylum or family or order or genus or species or ALGAE only if the document is to be retrieved as a general one. The term ALGAE is like a main heading from which all the sub-classes start from.

In the "key-words index selection" the Key-words have no hierarchic order, but are derived from the indexing.

EXAMPLE: Acantocefali, Vermi
Acanthocephala, Worms

In the 'taxonomic index' the key-words are grouped according to the main classes where they belong to.

EXAMPLE: ALGHE; ALGAE
Clorificee; Chlorophyceae
Corallinacee; Corallinaceae

And so on.
It's the user who chooses which one to use, according to his/her needs.
In the 'guidelines and subject-categories index' there are described the activities connected with the key-words, besides the family.

EXAMPLE: ARTHROPODA
Conservation technique

Culture
Products
Technology

All these examples refer to the monographics dictionary (bilingual (Ref: Sigle Report CNR-ISTTA no 21-Libr.inf. dd. 11-10-91).

The 'guidelines index' is an improvement and enlargement of the fields connected to the main key-word. From many documents, though, one main key-word cannot express the whole concept or the subject is so large/specialized that the 'guidelines index' can integrate it.

EXAMPLE: BIOLOGY
Economic Biology
Evolutionist Biology
Experimental Biology
Marine Biology
Tissue, Cellular, Molecular Biology

Anatomy and morphology
Development and maturation
Ecology
Geographical treatment
Pathology
Physiology

General Observations on The Sub-Indexes

The main feature of the key-word sub-indexes is a great flexibility.

Summarising, we can say in the 'key-words index' the selecting work is made, in the 'taxonomic' one the idea of something specific is developed, in the 'guidelines' one information is given about fields of knowledge connected to the specific field searched.

Many users search for documents on a species or sub-species X, but they do not know its class, family, phylum ... from which one could easily retrieve information about the species searched for, a search which is possible using the indexes.

The users seem to be quite satisfied with the key-words and taxonomic indexes, and the retrieval percentage is quite high.

The users are the ones who pick the 'guidelines index' up, as they have the need of a specific retrieval, but they are not acknowledged with the similar fields of knowledge connected.

Flexibility and updating are the strong peculiarities of the dictionary, making it extremely useful.

The trilingual index (serials) (Ref.: Sigle Report CNR-ISTTA no.30-MF.Library dd.30-12-92) (Languages: Italian/English/French) is divided in:

a) key-words index
b) similarity index
c) vocabulary like index (Ref.: Sigle report CNR-ISTTA no.33-MF.Library dd.15-2-93).

The key-words index is the result of the indexing of the serials content or its main subject. The similarity-correlation index is the synthesis of the key-words deriving from the key-words index. They are connected together and describe the fields of knowledge connected and/or the different ones in any serial indexed.

The vocabulary like index is the completion of the main key-word together with the subject lists which are connected to it.

The structure is similar to a thesaurus but with no hierarchic order, its aim is that of ease of use. For the choice, synthesis and terminology control, information has been taken from ASFA Subject index, the Asfis Thesaurus, Sigle Manual ... Cataloguing rules and Lessico internazionale di scienze della terra del CNR.

Conclusions

The key-words dictionaries made have no hierarchic order, like a real thesaurus; this is due to the limited amount of key-words used.

However, in order to build the key-words dictionaries, the constructing system used goes from a downwards tendency to an upwards one, as terminology is derived from the documents indexing. (Danesi, 1990). Following the key-words dictionaries creation, the need has come out to make up a classification system scheme having many disciplines referred to the field of aquatic sciences (Ref.: Sigle Report CNR-ISTTAno.84-MF.Library dd.2-3-98). The system is made up a main class with each sub-class, where each subject is examined more deeply. Each sub-class is marked by a letter which follows the word MAR (=Sea) and the number of the main class.

For example: MAR01 Oceanography-oceanology
MAR01a Marine environments

To each main class a sub-class follows. Some sub-classes have been enriched much more, as they cover the research fields of the Library and Institute.

This is the list of the main classes:

MAR01	OCEANOGRAPHY – OCEANOLOGY
MAR02	MARINE ECOLOGY
MAR03	STRATIGRAPHY
MAR04	OCEANS
MAR05	POLLUTION
MAR06	SEA LEGISLATION
MAR07	ANALYTICAL CHEMISTRY APPIED TO AQUATIC POLLUTION MONITORING
MAR08	FISHERIES AND ITS PRODUCTS
MAR09	METEOROLOGY AND CLIMATOLOGY
MAR10	WATER
MAR11	SEA
MAR12	AQUACULTURE
MAR13	ECOLOGY
MAR14	MICROBIOLOGY
MAR15	ALGOLOGY
MAR16	LIMNOLOGY – HYDROGRAPHY

The aim of the key-words dictionaries, it is to be said once again, is to be a very useful tool to both specialised and non-specialised users and to be always updated and enriched.

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