Introduction.

Teaching and Learning Terminology: new strategies and methods.

1. INTRODUCTION

Terminology is part of the programs of several university degrees and postgraduate courses (Translating and Interpreting, Applied Languages, Information Science), in many countries, it is even the main discipline in some university degrees. In addition, apart from the official university programs there are a number of specialist training courses on Terminology focused on different applications, such as teaching languages for special purposes, language technologies and knowledge engineering. Besides, the use of terminology in specialized areas also makes lectures of some studies (Biology, Physics, Health Sciences, Engineering) think about the ways in which their students acquire this specialized vocabulary.

In this special issue, we intend to present and reflect on experiences dealing with Terminology training, from a theoretical, practical and professional perspective. We believe that, after many years teaching this subject in different degrees and in different ways, it is time to consider what should be taught about Terminology, how to teach it, how it is learned, what experiences have been put into practice and how did they work, and how to connect what is taught in universities and other institutions with the practical skills that professionals from different areas (translators, information scientists, knowledge engineers) will require, with respect to their knowledge of Terminology. Also we need to realize that the discipline has changed drastically over the past years, and new practices and methods have triggered the need to design new models to accommodate them.

For this reason, our purpose in this issue is to gather training experiences in which one or more of the following aspects related to education are included:

- analysis of the training requirements in terminology depending on the professional profile and on the subject area;

- objectives sought when designing the teaching program, and obtained or expected results depending on the professional profile, competences that must be acquired by the students;
- teaching-learning methodology of theoretical and practical contents of Terminology, in terms of the tasks and exercises performed by the students, lectures versus virtual learning models, or assessment methods;
- designing and organizing contents and competences of the curriculum focusing on the different applications of Terminology, Terminology as part of the curriculum in the context of a larger training framework (programs, specific courses, etc.);
- aim of terminology training, terminologist's role and profile in today's society, other professional areas where terminology skills are required.
- latest tendencies in terminology training, educational innovation experiences, lecturers' classroom experiences, learning experiences in virtual environments, adding new contents to the curriculum;
- Terminology as a subject in different programs and countries, the profile of the lecturer responsible for terminology training;
- Computer tools and resources used in the classroom, ways of using them.

Often, lecturers have focused on their role of researchers and have given less attention to their role of knowledge transmitters. Educational psychology shows us that the student's learning process, also at university levels, is complex and requires lecturers to reflect in order to understand how it is produced and thus improve the way in which knowledge is really transmitted. It is important that lecturers do not neglect this reflection on their role in this process, and that they know and reflect on how to perform it. For this reason, we need to begin by examining studies on learning theories and adapt them both to the own nature of the discipline we are concerned with, Terminology, and to the professionals we are going to train, whether they are foreign language learners, terminologists or translators; and on the basis of these reflections design the most appropriate teaching program.

Thus, as an introduction to this issue, in the following sections we will discuss, on the one hand, some of the learning theories that have been developed during the last decades and are starting to be included in Terminology university

training (or disciplines with students from related Degrees such as Translation) and, on the other hand, the basic elements of a subject's plan design in accordance with these new theories. With this, we seek to provide a framework to better include the different experiences and works that are presented in this issue and others that have also had some dissemination in the teaching and learning of Terminology.

2. TEACHING AND LEARNING: NEW STRATEGIES AND METHODS

Learning theories developed from the sixties from a cognitive perspective, provide lecturers with theoretical principles and training techniques that allow them to reflect on the teaching-learning process, to plan its development and to select the most appropriate pedagogical strategies, according to the contents of the subject and the academic context in which the teaching is carried out.

These new theories advocate that a mechanical and repetitive learning, in which students retain information in their memories apparently without meaning, produces inert knowledge. This inert knowledge can be retrieved from their memory when it is activated by questions, but students cannot access to it and apply it to new situations. In addition, human capacity to store arbitrary associations is limited, both in time and amount of information, and, hence, non significant associations are quickly forgotten.

Success in the teaching-learning process begins by assuming that the student is not just a passive receptor of the knowledge taught by the lecturer, who learns at the same time the lecturer explains the contents. The student, on the contrary, is an active subject who looks for the relevant information, processes it, classifying and relating it to previous knowledge, and reorganizes the ideas producing new structures. If an active assimilation of information is sought, significant learning is needed. Significant learning implies, firstly, that there is a substantial rather than arbitrary relation, between the new information and the pre-existing cognitive structure. And secondly, it implies that the student must have a positive attitude towards this learning, and must be willing to establish this

significant relation.

The integration of new knowledge in previous cognitive schemas by significant learning, promotes the understanding of the contents and the retention and retrieval of that knowledge in order to interpret new situations, solve problems, think and reason, and generalize. This is known as *generative knowledge*. From this perspective, two teaching-learning models or styles must be highlighted: learning through transmission and learning through discovery.

In the **Learning through Transmission's** model, the lecturer is the authorized source who originates knowledge, and he/ she is the one who explains and analyzes the understanding level. His/ her role in significant learning consists of making new cognitive structures more accessible to students. For that purpose, techniques that present knowledge to students in an organized way (key words, superordinate concepts) are presented, stimulating the students to relate new knowledge to pre-existing knowledge, using analogies, metaphors, examples, diagrams (Ausubel et al., 1978; Mayer, 1987; Good and Brophy, 1990).

In the **Learning through Discovery** model it is promoted that lecturers provide tasks to learners so that they can learn from their own self-guided exploration (Bruner, 1966). For that purpose, some techniques are used: simulation activities, such as role playing, games where the competition element is introduced, or problems and situations that must be solved by using an appropriate methodology.

The most recent cognitivist theories, known as *constructivists*, focus significant learning on the student. These theories emphasize techniques that help the student to be part of the teaching-learning process.

Constructivists point out that each student develops his/ her own reorganization of the content. Even if the material received is identical, each student will highlight or retain certain ideas that will not necessarily be the same as those of other student. One of the most emphasized aspects is that they consider that the educational context is artificial and leads to teach generic knowledge and abilities. In order that the student can generalize what he/ she learns at class to other basic living or professional situations, it is necessary that the lecturer is conscious of the potential applications when he/ she plans and selects the teaching

program. In addition, it is necessary to emphasize which are those applications when tasks are presented to the students. Finally, it is also necessary that the simulations, tasks or materials are realistic.

3. TEACHING DESIGN

The design of the subject of study, its planning, implies the integration of all the axes of the educational process: objectives, contents, methodology, resources and assessment.

Let's analyze then which are the teaching design elements:

OBJECTIVES. These are the results we expect to get with our teaching activity. They provide criteria to select the teaching methods, the students' learning activities and the performance assessment systems.

CONTENTS. These include what to teach. It consists of narrowing down the learning area and grouping the curriculum aspects in significant entities.

METHODOLOGY. It includes the training strategies and the resources that will be used to carry out the teaching-learning process. We must take into account the number of students and their maturity level, the length of the subject and the planned activities, as well as other factors related to the infrastructure and the institutional context.

ASSESSMENT. It refers to the way in which the teaching-learning process is controlled and students' learning results are measured.

On the basis of these planning elements, we must specify the didactic units and activities or tasks. The **didactic units'** are aimed at reaching a series of specific learning objectives through several contents and educational activities, and are subject to a different assessment. The **tasks** or **activities** represent the realization of the strategies that will be used during the teaching process in order to reach the learning objectives.

3.1. Didactic Objectives

Generally, three types of objectives can be distinguished, depending on

their relation with the acquisition of knowledge, skills and attitudes (Bloom, 1956).

Knowledge acquisition is related to the development of the student's intellectual or cognitive skills. Three levels of complexity can be distinguished (Guilbert, 1994):

- **Recall of facts.** This involves the accumulation of data (facts, principles, patterns, methods) in the student's memory, in order that this data can be recalled after its learning.

- **Interpretation of data.** This involves that the student applies the data to a specific situation, analyzing its parts and relating this new situation to what he/ she has already learnt.

- **Problem solving.** This involves that the student can reformulate the methods already learnt in order to adapt them to new situations.

The programmed tasks must be aimed to get these three levels of complexity.

Skills acquisition involves the development of sensory and gross motor skills in order to handle objects and instruments. In skills acquisition three levels of complexity can be accomplished: imitation, control and automatism (Guilbert, 1994). Imitation consists of repeating a model's action; the control stage implies performing the action regardless the model. The automatism stage consists of performing the action unconsciously.

Attitudes refer to subjective phenomena of emotional or intellectual nature (hate, sympathy, fear) with which students face situations, and which are shown through behaviors (escape, attack) or opinions (De Juan Herrero, 1996). The student's interest and motivation in the subject, highly depends on the fact that the student considers it really associated with his/ her professional profile.

3.2. Contents

Contents selection must adapt to the teaching-learning situation, the formative objectives we want to reach and the scientist and social reality of the subject.

The selected contents must be relevant, they must be balanced in quantity

and time available for being learnt, and must take into account the student's previous knowledge level (De Juan Herrero, 1996: 47). The contents' relevance will be marked by their adaptation to the professional reality the student will find and by how useful they are for the student at the moment he/ she is taught.

3.3. Methodology

Didactic methodology refers to the implementation of activities which allow the student to get to the contents taking the proposed objectives as a starting point, and having a series of resources.

The lecture, the practical classes in the laboratory or in the computer classroom, the tutorial sessions, the conferences and the seminars are different strategies that can be used in each learning situation. For that purpose, it is necessary to anticipate the available resources: computers, computer programs, bibliographic resources, etc.

3.4. Assessment

Educational assessment is understood not only as the evaluation or grading of the results obtained by the student through the teaching-learning process, but it also includes all the elements that take part in this process, in a way that the teaching process carried out by the lecturer; the curriculum objectives, the methods, resources, etc., are also subject to assessment.

The most important types of assessment are the summative assessment, the formative assessment and the initial or diagnostic assessment.

- **Summative assessment**. Its function is to test the level of the student when he/ she has reached several objectives, in order to punish or certify his/her learning.

- **Formative assessment**. It provides information on the teaching-learning process. Hence, if it is detected that the desired objectives are not being achieved, changes can be introduced to improve the performance.

- **Initial or diagnostic assessment**. It provides information on student's skills (intellectual skills, previous knowledge, personal provisions, personality), in order to adapt teaching to his/ her skills.

4. TEACHING AND LEARNING TERMINOLOGY: ARTICLES IN THIS NUMBER

In this issue we can observe the confluence of three main areas in which terminology training is developed: the teaching of terminology theory or theories and its principles, the teaching of terminography methodology and practice, and the teaching of technologies for terminology.

From the theoretical point of view, authors recognize that the general theory of Terminology has prevailed during the last decades, however this trend seems to be changing towards the teaching of more recent theories, and especially those focused on communication. On the one hand, the establishment of the general theory of Terminology as a discipline has highly contributed to its recognition as such a discipline, and this, at the same time, has contributed to its introduction in the university training. On the other hand, nowadays it is pointed out that this theory is not the most appropriate for the training of communicators and translators, for whom more recent theories of Terminology, such as the communicative theory, sociocognitive or Frame-based theory, may be more profitable.

From the practical point of view, we appreciate that the practical aspects of terminology, such as terminography, and aspects such as the elaboration of systematic terminologies or the punctual search of terminology, are an essential part of translators training. In addition, as it is suggested in the article of Fernández, Flórez de la Colina and Peters, these aspects may also be useful for training second language learners interested in a specialized area, such as engineers which may be interested in learning not only general English, but also the specific terminology of their area. Depièrre's article deals with aspects of terminology analysis from a practical view, but it also takes deeply into account the principles of Terminology and Linguistics theory. Thus, it is shown that the combination of theory and practice is essential.

From the point of view of Technologies, it is clear for everybody the

necessary incorporation of this aspect to the training in terminology. Bowker and Marshmann address the question of the difficulties faced nowadays by universities to implement this aspect in their training programs. Consequently, these authors suggest an interesting project on the teaching of terminology and translation technologies in the training of translators. Furthermore, Fernández, Flórez and Peters, as well as Depièrre, discuss ways of incorporating technologies, especially working with corpora, term bases, Web search engines and CAT tools in terminology lessons.

Through these articles, we can observe how the teaching methodology is developing, both in Terminology and in other disciplines, towards more active didactic methodologies. The objective is to promote students' active participation. This methodological evolution has well deserved a change of name from *teaching* to *learning*. This change of name implies two different conceptions. In the conception of *teaching* the lecturer is the focus and provides all the information that the student simply receives. In the conception of *learning,* the student is at the centre of the process and he/ she is responsible for his/ her training process. In this last conception, the lecturer does not play the leading role of knowledge transmitter; instead the lecturer's role is to facilitate the student the access to knowledge. In this issue it will be shown, on the one hand, that Montero and Faber apply constructivist methodologies, whereas Sánchez-Gijón et al. apply problem-solving techniques, both designed to help the student becoming an active agent in the training process. On the other hand, Vaupot's article shows the effective linking of activities suggested to the student aimed at achieving several competences.

In the same way, the design of the subject's program has been addressed in the articles of Vaupot and Montero and Faber. In these articles we can see how to structure Terminology teaching using new methodologies and strategies, and how these methodologies and strategies must be linked to the future students' professional profile. Bowker and Marshmann's article bears on the interest of showing the student a real context, very similar to his/her professional future, in this case focused on translation.

Finally, we cannot overlook the explicit reference of some articles, such as the one of Sánchez-Gijón et al. and the one of Fernández, Flórez and Peters, to the

movement that nowadays is developing in Europe centered around the so called European Space of Higher Education, and that precisely supports the introduction of new technologies in university teaching.

5. CONCLUSIONS

Terminology teaching and learning is an area that has traditionally received little attention in the literature. Nevertheless, it is clear that lecturers are interested in discovering new teaching methods, in engaging the student in his/her learning process, and especially in linking the discipline with the professional area and the use of technologies.

We hope this issue has contributed to the reflection on the most efficient teaching-learning methods, to the exchange of teaching experiences and didactic materials between lecturers, and to the reflection on the professional future of the Terminology students.

6. ACKNOWLEDGMENTS

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