

MANAGEMENT OF DIVERSITY IN MASTER CLASSROOM: AN INCREASING CHALLENGE FOR SCIENCE EDUCATION IN VALENCIAN UNIVERSITIES

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Abstract

Currently, many foreign students study a Master degree at the Valencian Universities. We can find students, which have immigrated to Spain in the recent years, and then have partially or fully follow the Spanish curricula (High School and/or Grade), and others which have come specifically to study the Master, attracted by the reputation of the Universities and the job and way-of-life offered by the country, and then have achieved their Grade in their countries. This has increased the diversity of the students in the classrooms, related to the ethnic origin, mother language, study practices, background and integration in the society. The present work gives an overview on how students and teacher manage the heterogeneity and diversity in a Master classroom related to chemistry. The term “diversity” is first detailed prior to discussing explicit studies. Different aspects of diversity are stated. The personal experience of the foreign students to adapt to the Spanish courses and environment was investigated. The actions taken by the lecturer to take advantage of diversity and minimize its negative effects were examined. A comparison between the academic results obtained by international and national students is given. Finally, the attention will be focused on language, study practices and background, since these dimensions are frequently discussed in the Valencian context. The implications and opportunities that offer diversity for national but also for international science research are presented.

Keywords: Chemistry; Diversity; Foreign students; Master degree; Valencian Universities.

1 INTRODUCTION

The relevance of “heterogeneity” and “diversity” is growing because of such widespread developments as globalization, international migration, and both demographic and ethical changes in societies. This has an important impact in all aspects of the society, including University students. Besides, many students are interested in study abroad, because of the prestige of specific program studies, Universities, or the country. As the same way, the Universities are interested in attracting foreign students, in order to increase their visibility around the world and improve their level. Several actions have been proposed to increase the presence of foreign students:

- Launching of University, private and public grant programs.
- To introduce teaching in English in Degrees and Master.
- To prepare the University staff (professor, administrative, service...) and local students to interact with student/customers with other mind, religion, habits and low knowledge of Spanish.

Nowadays, in Valencian universities, especially in the Master studies, there are a great diversity in the origin, language, level and previous Degree of the students. This also means impact in the student achievements that could mean language skills, ways of learning, interests, motivation, economical features, and other particular situations. The diversity in the class can affect the normal development of the course, and then it can impact the learning process for the local students. Therefore, the professors should be aware of this situation and prepare actions to manage it. In this context, also we must take in consideration that is not the same heterogeneity that diversity [1]. In both cases, the learners are perceived to be different. In the heterogeneity concept, the differences are seen as a challenge to be dealt with. The lecturer works about the integration, and adjustments must be made to come to terms with their different needs. In the diversity concept, these differences are considered as

an asset and opportunity. The lecturer works on the inclusion, where their differences serve as a resource for individual and mutual learning and development.

The aim of the work is to study the diversity in the classroom of the theory subject Analytical Instrumentation taught at the Master of Analytical Techniques of the Clinical Laboratory. The origin and background of foreign students will be examined, as well as their experience. The impact of this cultural and academic divergence in the teaching-learning process will be considered. The actions taken by the professor and the adaptation of the didactic methodology to diminish the negative impact of diversity in classroom will be indicated. Finally, we will investigate the advantages of diversity for the entire group of students.

2 METHODOLOGY

2.1 Description of the subject

The project was implemented in the subject “Analytic Instrumentation” taught at the “Master of Analytical Techniques in the Clinical Laboratory”. It is a mandatory Theory subject of 3.0 ECTS. Clinical analysis is the scientific discipline dealing with the diagnosis, prognosis, therapeutics and prevention of diseases. For this purpose, Analytical Chemistry tools, methodology and instrumentation, are taken and adapted to their compound target and matrices. Therefore, clinicians must be familiar with chemical analysis.

The fundamentals and the basic instrumentation of the analytical techniques used in a clinical laboratory are explored in this subject. We focused on the clinical applications, thus the analysis of organic and inorganic compounds in biological fluids and tissues, as well as in pharmaceutical formulations. The didactic units are:

- Introduction
- Basic instrumentation
- Molecular UV-Visible absorbance
- Molecular Fluorescence
- Dispersion
- Atomic absorption
- Emission Absorption
- Immunoanalysis
- Electric methods
- Principles of chromatography

The evaluation consisted in the response of a test with theoretical questions and the elaboration of a theme presentation about one aspect of liquid or gas chromatography, indicated by the lecturer.

2.2 Development of the project

Firstly, the students from abroad were informed about the participation in this program: 9 students accept the participation and 3 declined. The volunteers were requested to fulfill a questionnaire (anonymous and voluntary) inquiring about their origin and their integration in the Spanish society and in the classroom, and how it affects their learning process. On the other hand, participation of local students was required, and accepted/declined, 12 and 4, respectively. These students complete the questionnaire of Table 1.

Table 1. Questions performed to foreign and local students

Origin and house language.
Level of Spanish
Studied Degree.
Adaptation to the Spanish way of life
Adaptation to Spanish university system.
Communication and relationship with other students and professor.
I needed a special attention from the lecturer
My presence delayed the normal development of the course.
The professor is adapted to special situations

3 RESULTS

About origins and house languages, 3 students were Romanian, with Romanian mother tongue, but with a fluent level of Spanish. They were well adapted to the Spanish university system, as they performed all the studies in the Spanish system, so communication and relationship with other students and professor did not suppose any problem. They were also adapted to the Spanish way of life. Also, about if their presence delayed the normal development of the course, the response was no. They thought that they did not need any special attention from the lecturer because of their origin. About the adaptation of the professor to special conditions, the response was yes, that he could manage the situation in the course.

Three students were from South America: 1 Argentinian, 1 Bolivian and 1 Colombian, speaking Spanish as mother language, all of them well adapted to the Spanish university system and way of life, so communication and relationship with other students and professor did not pose any problem. Also, about if their presence delayed the normal development of the course, the response was not. They believed that they are fully adapted to Spain, and they did not need any special attention from the lecturer because of their origin. About the adaptation of the professor to special conditions, the response was the same.

Two students were from Russia. Russian was their mother language, but they had a fluent level of Spanish. They studied their Degree in Spain many years ago, and then they are fully integrated in the Spanish way of life and University system. They were able to communicate with the lecturer and local students. They considered they did not need a special attention from the professor, and their comments in class did not alter the normal development of the course. They pointed the lecturer was able to manage the diversity in the classroom.

One student was from Morocco. His mother tongue was Arabic, and he was also fluent in French. He has a high level of Spanish, and had no problem to communicate with the lecturer and the local students. He studied his Degree in Spain many years ago, and then he is fully integrated in the Spanish way of life and University system. He considered that he did not require a special attention from the lecturer, and his comments in class did not affect the development of the course. He was satisfied about how the professor dealt with diversity in the classroom.

The lecturer realized that foreign students did not require any special assistance, and he did not take any specific action. He treated all students as the same way. In this study, the academic results obtained for Spanish students were similar to those obtained for foreign ones. All the students were fully able to communicate between themselves and the professor. Therefore, no problem was detected as for reasons of language and/or belonging before to the Spanish educational system.

4 CONCLUSIONS

Main conclusion was that there are not especial requirements or problems, in the chemistry education, at Master level in the Valencian universities, because of the diverse origin of the student. Normally, foreign students have performed their Degree and lived for many years in Spain, and then they were already adapted to the Spanish University system and the Spanish way of life, when they study the Master.

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