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The Academic Tutoring at the University Level: development and promotion methodology trough project work

José Miguel Molina Jordá^{*,a,b}^aDepartamento de Química Inorgánica, Facultad de Ciencias, Universidad de Alicante^bInstituto Universitario de Materiales de Alicante, Universidad de Alicante

Abstract

Tutoring is a methodological element of utmost importance in the EHEA (European Higher Education Area) context. Academic tutoring at university-level must offer counselling and technical support to university students in the three following areas: academic, professional and personal. This contributes to the students' integral development through their university years. Nevertheless, its potential is very often overshadowed due to the general lack of awareness (here we must place responsibility on the teacher-student relationship) of its methodological function in the teaching proposal required by the EHEA, whose organizational model is focused on the acquisition of competencies. A Formative Assessment applied model in university subjects, in which the teacher becomes tutor of autonomous work groups and that proposes the use of well-organised academic tutoring sessions, is proposed on this contribution. The result, after introducing this model in the classroom, is very positive in several aspects, since it contributes to the development of instrumental, interpersonal and systematic competencies. Moreover, there is a very favourable improvement of the use of tutoring sessions as far as students are concerned, which will be of advantage to their teaching-learning process.

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Keywords: tutoring; project work; formative assessment; portfolio; rubric.

1. Introduction

1.1. Question posed and contextualization of the problem

Tutoring is a methodological teaching tool with great potential within the new EHEA context. According to Ferrer (2003) 'tutoring is a training activity that has an impact on the holistic development of university students

* Corresponding author. Tel.: + 34 95 590 3400 (2055)

E-mail address: jmmj@ua.es

in their intellectual, academic, professional and personal dimension. In other terms, it can be said that it is the teacher-tutor activity aimed at favouring a permanent maturation process, through which university students manage to obtain and process correct information about themselves and their environment, within intentional proposals of reasoned decision making: to integrate the constellation of factors shaping their life-course; to fix their self-image through life-course experiences in general and tasks in particular, to display the precise abilities and attitudes in order to integrate work inside a global life project.'

As reflected above, tutoring is a more complex process than a 'doubt solving' activity as understood hitherto. The concept of tutoring is in itself an inclusive global process that it is not reduced to 'office hours'. According to Rufino Cano's words (2009): tutoring reappears adopting a clear, renewed goal stated in terms of unified criteria and more complex actions in an attempt to improve university teaching quality; to deeply transform the procedures centred on students' learning, so as to provide them as complete a training as possible through their university experience; and, of course, to favour their entering the professional world from the platform of an organizational model of university counselling and formally institutional tutorial action. Therefore, it is understood as an institutionally standardized teaching activity and inherently linked and integrated in the teaching practice of all teachers and to the performance of their duties, as the closest level to students, from a multidimensional perspective.

In general terms, three great tutorial spheres or areas are defined (Rufino Cano (2009)):

- Vocational counselling (transition from college to university)
- Academic tutoring at the university level (teaching and research)
- Career mentoring and counselling (professional world)

These three tutorial areas must be enhanced to the extent possible. This paper expects to offer an alternative to favour academic tutoring through a new methodology based on group-work research projects.

1.2. Question posed and contextualization of the problem

Though a correct tutoring offer implies the development, put into practice and follow-up of an integral tutorial planning as well as a of a support plan for academic, professional and personal development of all students with no exceptions. It is also true that small actions of redirecting the teacher-student relationship may contribute to obtain better results on these plans. Thus, this paper expects to prove that, by means of a methodology based on the tutoring of research works carried out in work groups, it is possible to encourage students' awareness that in the future they must look at a teacher's role not in terms of a mere purveyor of knowledge, but in terms of a guide and a source for learning. With the methodology put into operation in this paper, it is concluded that students have shown an attitudinal change towards their relationship with the teacher, the use of the academic tutoring has been promoted and, most importantly, a noticeably dialogical, reflective relationship has been generated between the teacher-tutor and the students.

2. Methodology

2.1. Context and participants description

The tutoring methodology proposed here has been put into practice in two subjects of the Faculty of Science at the University of Alicante taught by the author of this paper. In particular, the participants have been students from the 'Introduction to Materials Science' subject, a third-year subject of the Chemistry Science Degree, and from the 'Solid-state Chemistry' subject of the Master's Degree in Nanoscience and Nanotechnology. Due to the excellent results obtained, it is intended to be used in future subjects of the Chemistry Degree and in subjects of the Master's Degree in Materials Science and the Master's Degree in Nanoscience and Nanotechnology. Both the development of the work and the conclusions derived from it are the result of working with students from different years during two consecutive academic years (2009-2010 and 2010-2011).

The students participating in this experience have been, therefore, undergraduate students in the middle of their academic maturation period and students who have already finished their curriculum. In both cases, the

initial disposition has been the same and both groups have considered the exercise to be very positive for their training.

2.2. Materials

In general, no special materials are required. The following materials have been used for the development of the exercise proposed: i) for the classroom work: a projector and a traditional blackboard, besides the U layout of the tables for a better teacher-student approach; ii) for the work at home: a computer.

2.3. Instruments

The instruments used for the accomplishment of this project have been very much welcomed by the students, who had never had previous experience with them. These instruments are the following:

- **Learning agreement:** the learning agreement developed is a mutual contract between teacher and students in which the codes regulating the behaviors, interactions and relationship between both sides of the teaching-learning process are explicitly made known in writing. The contract version chosen has been a group contract (the contract is signed by a whole group and not only by one student); this way, a clear cooperative learning objective is set from the beginning and the use of individualist learning strategies is prevented. The objective of this agreement is to direct students' independent work or work at home promoting their autonomy and their learning to learn competency.
- **Portfolio:** the portfolio consists of a document in which all the output made by the student and the teacher is collected. It is through that output that competencies can be judged in the context of a discipline or an area of study. The group portfolio informs of the evolutionary process followed by the group, allowing the group itself and the teacher to see the achievements with regard to the learning objectives and to the assessment criteria previously established on the learning agreement. Therefore, it is 'a dynamic process through which teachers and/or students gather the data resulting from their work and professional and academic development respectively, organized by themselves on the basis of reflexion, discussion and consensus with other colleagues and the author-advisor of the process' (Lyons (2006)). The portfolio format used can be seen on the Annex.
- **Rubric:** This has been the instrument used for the assessment of the accomplishments achieved by the different groups (a group rubric has been used) and by the different students (an individual rubric has been used as well). Rubrics are measuring instruments, in which criteria and standards are established for levels through the layout of scales, and that allow determining the quality of the students' execution in specific tasks. The most important advantages of using this tool quoted in Frade (2009), Martínez-Rojas (2008), Capote and Sosa (2006) are, among others, the following: a) students assessment is more objective, since the measuring criteria are clear and known in advance; b) it clarifies the learning objectives and the means to achieve them; c) it provides students with feedback on their strengths and weaknesses on those areas they need to improve; d) it helps to maintain the achievements of the learning objective focused on the established standards of performance and on the students' work.

2.4. Procedures

An action strategy has been followed for the development of two very important aspects in the teaching-learning process within the context of Higher Education: a) group work; and b) project work. In order to develop these objectives, a plan of action of academic tutoring has been planned. In the aforementioned plan, judging by

the results obtained, students have evaluated their academic and personal development very positively and have learnt to 'use' tutoring sessions as a methodological element of special importance in their path as protagonists of their own learning process. The procedure followed is now explained. The subjects in which this experience has been put into practice have a common thematic content, which is the materials science and the solid state or condensed matter. All of them share a 'Characterization Techniques' thematic cluster in which they must develop the different techniques to obtain characterization information of the different solid materials presented throughout the academic year. The experience lies in proposing a tutorial action planning to guide students in the development of the aforesaid thematic cluster by means of research works. To this end, the first task has been to explain the activity to the students and to read them a proposal for a learning agreement, as well as to inform them of the monitoring of their work through a portfolio and of the existence of a rubric as an assessment element (not only with grading purposes) of their work throughout time. Reached a consensus, the class has been divided into work groups, as proposed by the students themselves, so that each group is composed of five members. Therefore, five research works have been proposed. Once known the groups and the research work proposals, each group must be assigned a research work. It is advisable that this task is done in a comfortable, dialogical climate in which all different groups can reach an agreement between them and with the teacher in order to reach a general consensus.

Research works entail face-to-face activities and activities to do at home. The idea is that students can develop a lesson of Characterization Techniques by means of group work and present the topic on the last session of a series of six sessions. The work at home will consist of developing the different aspects of the research work that have been established in the portfolio. This work will be guided by means of five tutoring sessions with all different groups in the classroom. Each student will play a different role in every session and will provide whatever required depending on the role play in each session. All five roles to be assumed by the students in their groups (coordinator, secretary, person in charge, assistant and spokesperson) are taken into account on the portfolio, in which it is depicted the rotation of roles for each students in the group (each students is identified with a number from 1 to 5). Thus, the student whose number is number 1 will play the role of coordinator on the first session, of secretary on the second session and so on. The role for each one is specified on the students' portfolio. So that the portfolio can be revised by the teacher on a regular basis and the members of the group can receive feedback of their work and progress, it was decided to use a digital format with free access for the teacher by using the Virtual Campus (a computer tool on the University of Alicante website that allows the exchange of information between teacher and students). Therefore, the portfolio will have notes both from the students and the teacher, thus becoming an actual work and assessment tool. There are sections of the portfolio to be filled in by the teacher, some others to be filled in by students and some others, as in the case of the assessment questionnaires that must be filled in by each group member.

After the five sessions of tutored work, on the sixth session each group must present their work, in a free format, in front of the teacher and the other groups for a maximum time of 25 minutes, so the main contents are summarized. Moreover, each group must explain both the members' and the group's progress. During this session the members of each group must undertake the role of speaker.

3. Results

Generally speaking, the experience has been very positive. Students have handed out the portfolios and have defended their works orally in conformity with the teaching-learning agreement previously signed. In the explanations of their progress, they have shown great optimism towards this activity.

The assessment questionnaires have provided by the students, as well as some of the teacher's records, are summarized in the graphics below. The graphics gather different opinions from students of all groups (regardless their subject or year) that have taken part in this activity.

- To the question 'Group work is...' (Attitudinal self-assessment), students have answered:

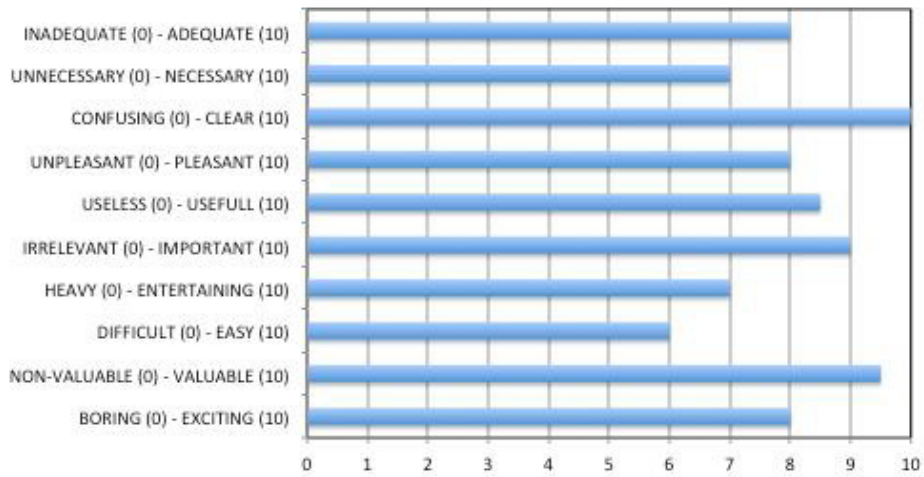


Fig. 1. Results of the students' attitudinal self-assessment questionnaire in response to the question 'Group work is...'

- - To the question 'My behaviour while doing the research and on the oral presentation has been...' (behavioural self-assessment), students have answered:
 -

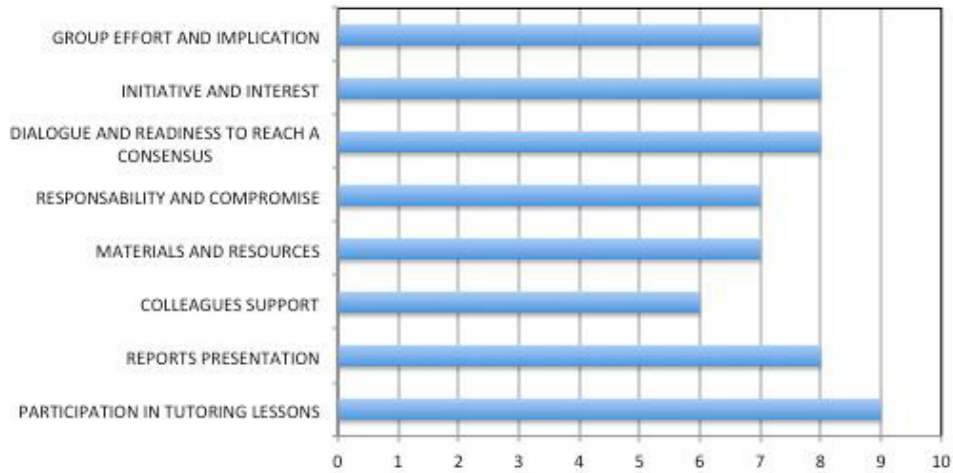


Fig. 2. Results of the students' behavioural self-assessment questionnaire in response to the question 'My behaviour while doing the research and on the oral presentation has been...'

- The record (number) of the 'extra' tutoring sessions (apart from the 6 suggested sessions for work development) gathered by the teacher are summarized below:

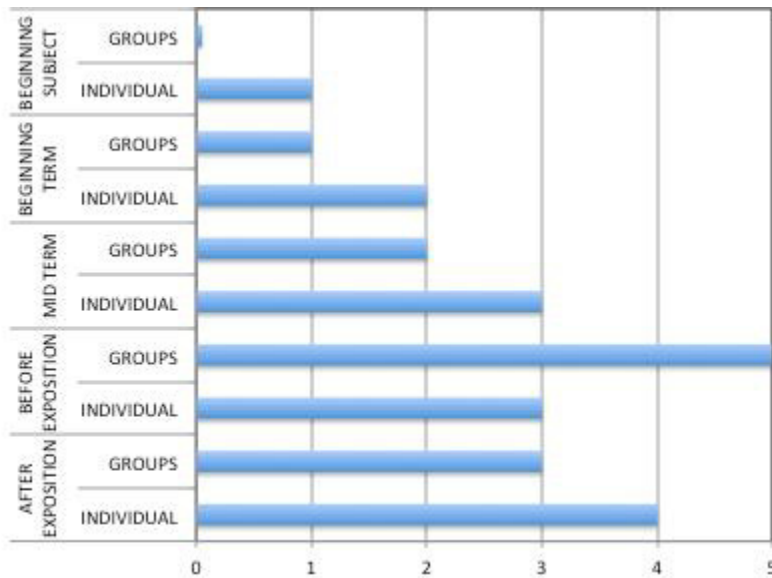


Fig. 3. Results registered by the teacher regarding the number of 'extra' tutoring sessions either in group or individually.

- The record (number) of the 'extra' tutoring sessions gathered by the teacher for the resolution of questions raised in relation to individual or group roles is summarized below:

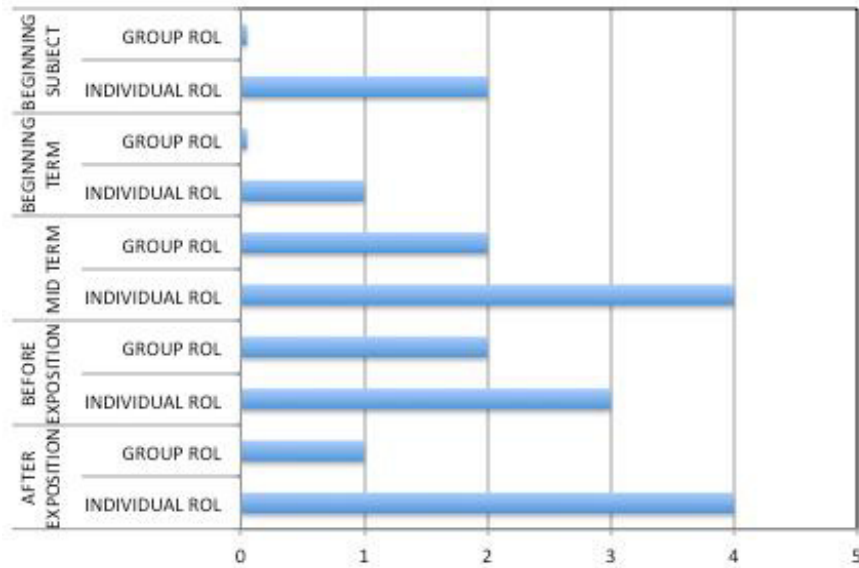


Figure 4. Results registered by the teacher regarding the number of 'extra' tutoring sessions for the resolution of questions raised in relation to both individual and group roles.

4. Conclusions

In general, a very positive evaluation from the students involved in this experience is observed. Students have considered that this activity is (in ranking order):

Clear / valuable / important / useful / adequate – pleasant – exciting / necessary – entertaining / easy

Consequently, students become aware that a difficult activity does not need to be unpleasant or little enjoyable, as well as that it can be very useful for their learning process. As for their behavioural self-assessment, students show full involvement in the group work and value their participation in the tutoring sessions as very important (both in the 6 established sessions and the extra sessions), recognizing them as an essential methodological element in their training by grading their implication in this activity with a 9 out of 10. In the same way, the graphics obtained show that students have used extra tutoring hours both for the preparation of the research work and after the oral presentation. This proves that during this activity students have become aware of the teacher's role as their learning guide and are prepared for the teacher to continue playing this role for the rest of their training (not only until the accomplishment of this activity). Likewise, the reading of the information obtained about the resolution of the questions raised in relation to individual or group roles is very positive. Even though individualized tutoring still prevails, the results obtained seem to conclude that students continue to work in groups even after having finished the activity, since the number of group tutoring sessions, which was non-existent at first, appears to be of some importance now. The membership of the extra tutoring sessions in group coincides entirely with that of the work groups formed for the accomplishment of the research works. It appears,

therefore, that students have adopted cooperative studying models that have expanded to their general learning activity.

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