

# IMPROVING LEARNING ENVIRONMENT AT DIFFERENT ACADEMIC LEVELS THROUGHOUT GUIDED WEEKLY REFLECTION PAPERS

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## Abstract

A group of lecturers from different teaching areas at Alcalá University concern by Innovative Education had implemented during four academic years a learning tool based on “reflective weekly papers”. With the experience gained in this process we have carried out an essential modification in the procedure which provides the students the possibility of a more active and participative learning called Guided Weekly Reflective Papers.

In this communication we present the adaptation of this educational method for the first time as a valuable strategy for improving the learning environment in secondary schools, as an extension of its implementation at the University level and as a contribution to the integral formation and meaningful learning of the secondary level students.

Keywords: Guided weekly reflection papers, Secondary schools, Meaningful learning.

## 1 INTRODUCTION

In recent years, the social and educational changes call for an active and reflective student-centered learning premised on the need to train students intellectually, by providing them the theoretical knowledge specific to each subject, and in terms of practical competences and abilities, aspects which are highly valued by society and employers. Bearing in mind that education should be based on effective and practical long-term learning, one of our priorities has been to make a reflection on our own teaching praxis, to review and validate our methods, and to introduce the changes deemed necessary.

For that reason, our team of Innovative Education started-up four years ago an innovative teaching experience based on “reflective diaries”. We have applied this methodology in diverse teaching areas and it has been continuously evaluated and reviewed in order to diversify the initial procedure. This lead us to design a more flexible and valuable tool called “Guided Weekly Reflection Papers” (GWRP) which gives us the opportunity to introduce the students in a process of more active and participative learning, and motivates and encourages them to achieve more significant and reflective knowledge and generates interest in emergent topics.

Our University collaborates frequently with different teachers belonging to secondary schools in our geographical area where the students come to our University from. We, as university teachers, will be really interested to help them to acquire this reflective practice before arriving to the University. Therefore our Innovative Education group has proposed to some of those teachers the implementation of this GWRP tool in the secondary school adapting this method to the special characteristics of the educational environment at this level.

The aim of this paper is to present the adaptation of this educational method for the first time as a valuable strategy for improving the learning environment not only at university level but also in

secondary schools, and as a contribution to the integral formation and meaningful learning of the students.

## **2 DESCRIPTION OF PROJECT AND GENERAL METHODOLOGY**

### **2.1 Former methodology**

This project was planned in line with the dynamic of the “Weekly Reflection Papers” [1,2,3]. Given the heterogeneity of the teaching areas in which the different lecturers of the Innovation Educational group have applied the tool, great flexibility was required for it to be implemented.

For that reason, the following were taken as the key points of the methodology to be put into practice:

- The students hand in the Weekly Reflection Paper (WRP) to the lecturer at the start of each stipulated period (week or topic unit).
- When writing their papers, the students should attend to two basic matters:
  - a) The clear and concise exposition of those concepts which they judged to be most important of those presented and explained in the contact hours of the relevant period.
  - b) The analysis of the degree of difficulty of the subject and of the evolution of their knowledge, as well as any other reflection they deemed opportune.
- Participation in this Project is voluntary. The writing of the papers is not necessary to pass the subject, but is strongly recommended on account of its utility as a learning tool.
- The style and structure of the papers is totally free. Both the clarity with which ideas are expressed and the level of personal communication achieved are considered to be key elements in writing the papers.
- The papers may either be handwritten in order to improve the skills of writing and expressing ideas correctly in their own language.
- Once they have been checked, the lecturer returns the papers as soon as possible with a view to clarifying concepts, correcting errors and responding to the students’ comments. This feedback is one of the main features of this exercise in educational innovation.
- The papers are evaluated on the basis of three main criteria, with points being awarded from 1 to 5:
  - A= Capacity to extract all the fundamental concepts.
  - B= Capacity to synthesise and clarity of expression.
  - C= Capacity to reflect and comments.
- Each lecturer monitored the activity by filling in a table indication the number of papers handed in by each student and the mark for each. On the basis of these data the degree of participation in the activity was analysed statistically, together with its influence on students’ attendance at classes and exams, and its relation to the final marks obtained.
- The activity’s weight in the final evaluation of the subject will be determined by the lecturer for each subject.
- Students evaluate this activity by means of a final questionnaire in which they state their opinion about the Weekly Reflection Papers under the following heads: balance between effort made and results achieved, contribution to knowledge about the subject, contribution to lecturer-student relationship, and improved lecturer perception of teaching-learning process.

After reflecting over its strength and weaknesses we believe firmly that the advantages of the strategy as a method for the student to be “up to date” with the subject, as a communication way with the student, etc. as described by Quintanilla et al. [4] make worthwhile the activity’s application in subsequent academic years in spite of the enormous amount of work which suppose the revision of all the papers every week. Nevertheless we have to be careful in trying to improve the methodology with a view to involving a higher number of students, and correcting those aspects which were less

satisfactory, especially the scarce ability of the students to reflect about what they learn and how they learn.

## **2.2 Reviewed methodology**

Once the results of the former methodology have been analyzed and in order to overcome its weaknesses and threats, our Teaching Innovation Group tried to diversify and make more flexible the tool to introduce the students in a process of more active and participative learning, with the aim to develop certain skills, specially the ability to integrate, review and apply knowledge in a critical and reflective way. The modified tool was called "Guided Weekly Reflection Papers" (GWRP). The professors guide the student's work through a series of questions on which the students must apply the most significant concepts studied each week (or topic unit), to prove the acquisition of such aptitudes and skills

One of the objectives in the new methodology is focused on encouraging the students to write the WRP in an enthusiastic, original and interesting way, avoiding the mere repetition of the notes taken in class, but at the same time, not following a classical "question-answer scheme" as in an exam.

The students have to apply the concepts developed during the week to solve some questions or problems stated by the lecturers. This point will provide the information about the level of understanding of the knowledge reached by the students.

They also have to find solutions to situations of the real life by means of the learned concepts. Or explore beyond the walls of the classroom to discover where around them is it possible to find the material presented by the teachers. Taking as example the subject Chemistry, we could ask the students where in the real world can they find saturated hydrocarbons or carboxylic acids; probably they never before came to the idea of relating what they learn in class with what they can find in the kitchen of their houses.

Finally, the students have to search correspondence among related concepts taught in other parts of the same subject or, specially, in other subjects. It is necessary to avoid studying the topics as isolated compartments

All these changes have been implemented only during two semesters at the university level. Therefore we are in the first step of getting conclusions of the tool, being the preliminary results very promising.

## **2.3 Implementation in the secondary school level**

Some teachers who belong to the University as associated professors are working also at secondary schools. We have involved Dr Guillermo Montero, one of these professors, in the project so that the experience is being carried out for the first time in the Instituto de Enseñanza Secundaria "Professor Domínguez" in Azuqueca de Henares. The purpose of our group is to extend this practice to other secondary level schools ready to join our project.

Teachers at the secondary level are very much concern about the scarce skill of students in expressing ideas in a written way. Besides, students have severe difficulties in understanding what is important or not in the topics presented for learning.

For all these reasons we deemed as very interesting to implement the tool GWRP at this secondary school level with some adaptations we will describe in the following.

In this teaching level is important the students to check their own ideas against the authority of their teachers and their own peers. This fact allows students to work through their reflections, to make them gradually more mature. It is much more interesting for them to learn from solving real problems rather than problems stated by teachers.

We try students to become more autonomous by acquiring the following competences: researching, managing one's own learning and applying knowledge and strategies to new situations. What we do mean with "researching"? Student's ability to look around their own world, to ask themselves questions that they have never made before and try to scratch around to get a coherent explanation. With "managing one's own learning" we mean the autonomous capacity of students to build their learning in a reflective and conscious way, by searching information and using learning strategies. Applying knowledge and strategies to new situations makes them to enjoy and allows them to discover in the studying the possibility to broaden one's horizons.

Unlike the work at the University, in this secondary school level the teacher is constantly reviewing and analyzing concepts and topics proposed to students, doing exercises, tests, etc. and correcting their mistakes. It is not necessary for him to remark mistakes in GWRP; this constitutes a part of the adaptation to this educational level. We prefer much more to focus on the amusing and attractive aspects of topics studied, the difficulties they have met and how they can apply these topics to real life or some problems beyond class. The second adaptation is related to the weekly control of the student's learning process. In this level the control will be carried out at most after each topic unit for both students and lectures not become overload with excessive work.

Now the problem would be to consider the most suitable group of students to start applying this strategy.

The most appropriate group for this purpose would be the second course of baccalaureate because the students are about to leave the secondary school and be admitted in the first course of university. However those students are extremely overloaded by the broad list of topics in the baccalaureate curriculum and the shortness of the academic year because of the university entrance examination.

That is the reason why we choose the 4<sup>th</sup> year of secondary education for the implementation of GWRP. The students of 4<sup>th</sup> degree of secondary education, two years younger, are about to start the baccalaureate degree and present similar problems as the ones related above for baccalaureate students.

We could mention some of the intellectual characteristics of 16 year-olds:

- They are developing abstract thinking.
- They enjoy demonstrating the knowledge they acquire.
- Try to develop theories to explain and make sense of their surrounding world.
- Like to observe things from many perspectives.
- Grow impatient with what they consider meaningless activity.
- They start to project the present behaviour on future. [5]

Due to the characteristics mentioned above we have to adapt the guided weekly reflection papers to this level. One of the goals we intend to get is that students reflect about what they are learning and how they are learning it. We ask the university students to make a formal scheme of the main concepts learnt on the topic whereas in the secondary school level we prefer the students don't to make such a formal work. The expected way to do the work should be reflect, in a written way, merely which concepts have been more impacting or interesting for them as much as the difficulties they have found in the understanding of this impacting concepts.

Another goal of this tool is the possibility for students to apply the studied concepts to solve questions or problems set by the teacher concerning with real life or situations in which they have to make use of this knowledge to explore beyond the strict situations studied in class. As an example, when we are studying the topic unit related to the difference between pure substances and mixtures we have asked the students to find at home some objects or products identifying the materials they are made of and describe if they can be classified as a pure substance or a mixture. The students were truly enthusiastic with the task and they were surprised in finding so many examples related with chemistry in such a well-known place as home. Students found some difficulties in classifying some products as milk, rice or beans due to their "homogeneous" aspect at a glance.

In summary the secondary level students have to hand in at the end of each topic their GWRP's in which they make a reflection expressing the most attractive aspects presented in the class, as much as the difficulties found. Moreover, they have to make a "research" in the real world to answer one or two questions stated by the teacher related to the topic explained.

The papers are evaluated on the basis of two main criteria, with points being awarded from 1 to 5:

A= Maturity in expressing reflection.

B= Capacity to solve the work suggested by teacher.

Each lecturer will monitor the activity by filling in a table indication the number of papers handed in by each student and the mark for each. These data will be collected in a table for subsequent analysis of the correlation with the final marks obtained at the end of the academic year. The results will be shown in a further communication.

The implementation of this tool for the secondary level has just started and is at the very beginning of its development. Therefore in this communication we are presenting the preliminary, but very promising steps carried out by the associated professor, member of our innovation educational group.

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