



# THE UROSARIO HAS DEVELOPED AN APP for students to self-regulate the way they learn

Designed by Jeniffer Lopera and Rafael Méndez, researchers at the Universidad del Rosario, *AutObserver UR* is the first web/mobile tool to create autonomous learning skills in students so that they may better deal with the academic and professional challenges they will face in their careers.

By: Ximena Serrano Gil  
Photos: Leonardo Parra



**T**he poor learning skills which students who enter university have, the high drop-out rates and the impacts on the health of students were what led the Program for Academic Strengthening in the Social Sciences and the Department of Applied Mathematics and Computer Sciences of the Universidad del Rosario to develop pedagogical and technological innovations based on self-regulated learning, in order to ensure that students finish their higher education.

With questions like how he or she slept, how long he or she took to do an assignment or whether he or she has a healthy diet or how much material he or she contributed to a group task, among many others, the student who uses the *AutObserver UR* App learns to observe and assess himself or herself; in addition, the student receives guidance on the development of skills to make academic learning more easy.

The project arose from a question which bothered the researchers Jenniffer Lopera Moreno, director of the Program for Academic Strengthening in the Social Sciences, and Rafael Méndez Romero, coordinator of undergraduate studies at the Department of Applied Mathematics and Computer Sciences and the Mathematics Service of the Universidad del Rosario: How could they measure whether what they were doing in the Program for Academic Strengthening had a positive effect on the learning skills of their students, taking into account that they make use of methodologies different to the traditional ones?

Those methodologies form part of special pedagogical assignments, where the courses do not wholly follow a single discipline but are oriented towards the skills which enable the student to continue with his or her undergraduate studies, since the program is focused on those who have performed poorly and have failed their courses.

That led them to an in-depth study of self-regulation in the learning processes of students and the initial objectives evolved. "We were interested in 'learning how to learn' but understood that the university was not teaching 'learning how to learn' and that was not only the fault of the students but of the

professors as well: That is why they are symbiotic protagonists," explains Méndez Romero.

Speaking of that, the philologist and social anthropologist Lopera Moreno argues that "in education we have focused on the development of the sciences and of critical, formal and mathematical thought; however, what we discovered is that you require one set of elements and another set of skills, as well as spaces for learning those skills." Their study led to a profound reflection on the practice of teaching itself and discovered important opportunities for improvement.

### The deficit rule

As a result of those studies, it was found that while it may seem obvious to all that students know how to organize their timetable, work in a group and have criteria for assessing their performance as individuals and members of a team, it is not necessarily so: "When we look at the path of these youngsters, we realize that they come from an education which is completely regulated from without, one where they are given school uniforms and the hours of their classes and they are told what they are going to learn and do in each class; thus, when they arrive at the university, they have to fight on their own, trying to do what they think they must do because that is what they taught them," Jenniffer Lopera notes.

Furthermore, she adds, the student is evaluated in terms of what he or she did poorly or did not do or the student is told is that he or she is going to fail or their grades are not satisfactory, but these aspects are only a part of the evaluation of the student's learning process. With those results, they found that the student is only evaluated when they tell him or her what he or she has to do or when the student receives poor marks, but the real purpose of the evaluation should be to tell the student where he or she went wrong or did something poorly and what the student should do to improve and what he or she is doing well.

### Breaking paradigms

At the Universidad del Rosario, learning is thought of as a meaningful process that is focused on the student and where the professor changes from being a transmitter of knowledge to a facilitator of knowledge, with disruptive methodologies which break paradigms. This pedagogical innovation involves the design and implementation of a model based on the educational experiences of professors and students, methods which promote self-regulated learning by means of a mobile application.

According to Lopera, the aim is to foster autonomous learning skills, so that the students may better deal with the academic and professional challenges they will face when they do the same courses over again and successfully finish them.

## The App has received an international recognition

In April of this year, Professor Rafael Méndez presented the *AutObserver* application at the "World Future Forum" in Chicago. This pedagogical application was very well received by the academic community; in fact, the text he submitted to the Congress won the award for the "best paper" at that academic event.

## Learning how to learn and self-regulated learning

The set of skills which the students develop when they engage in the process and organize their learning methods through the effective use of their time and information, whether in an individual or group effort.

On the basis of the concepts, actions and motivations the App displays, the student has more tools for self-evaluation which enable him or her to undertake actions to improve the learning process and gain a higher level of autonomy.



The students arrive at universities at a very young age, with a number of very big conceptual gaps and poor habits of study.

There are no systems for self-evaluation, nor does the university provide them with such ecosystems for self-observation.

## The App as a tool for follow-up

"*AutObserver UR* is an App which captivates the students, since it was developed with them in mind, it speaks the same language; so they feel they are being listened to and the answers are sincere," says Méndez. "This application is the embodiment of all of these pedagogical initiatives," Lopera adds.

The success of an innovative method like this one lies in the fact that the student reflects on his own learning process; hence, this mobile tool allows the students to review three particular characteristics in order to understand what self-regulation is: Learning to observe themselves, doing a self-evaluation of their acts and making decisions about all that.

It is very simple to use. The student chooses some items which are to do with his learning process, motivations and actions. For example, the student may choose an aspect like the way he or she organizes his individual or group work. At the end of the day the application asks the student: "What was the preparation of material for your group work like today?" The student then has to grade his or her activities from 1 to 5 and complement the mark with a qualitative analysis.

Finally, the application gives the student advice, based on the results which were obtained and then tells the student: "You should look for more support for a certain subject or find more material; read this article, etc."

According to the director of the Program for Academic Strengthening, aspects like personal care and sound hygienic practices (sleeping enough, eating well, exercising) are very important for the good academic performance of students. You sometimes hear them boast of how they didn't sleep for five days before their mid-course exams, as though it were a great feat they were proud of and they mean to say "I am a hero." The advice of the App is "if you don't sleep, you are not going to learn better. Organize your work in the day better."

The student can always review his history of self-observations and the application gives the student some timelines about the development of those grades, so that he visualize his process

## The most frequent problems of students

The students are only evaluated when they are summoned to and it takes place in terms of what they did wrong. Their grading is very harsh.



that way. The aim is not to give the student a simple option to record his or her progress, but a possibility of evaluating himself or herself and taking corrective actions, with some friendlier criteria and in a simple language which gives the student pertinent advice.

It is a very useful tool, since, in the words of the researcher Lopera, “we are seeing kids in the university who are very young, between the ages of 18 and 20, with problems of tachycardia, pre-heart attacks, acute gastritis, irritable bowels, insomnia, stress and depression, all linked with the demands of university life. With sound practices, there is no reason for them to endanger their health.”

### Let the data speak for themselves

In the opinion of Méndez, the data which are compiled are fundamental for an assessment of how the students are learning how to learn, since the way in which they measure themselves is important for the creation of new tools which will enable professors and students to design better practices for “learning how to learn.”

The information which the professors and students supply to the App is confidential and anonymous and is only used for the purposes of research, in accordance with the legal norms for handling such data.

According to the two professors, this is a new field of research in Latin America. There is no technological proposal about studying in the world and no educational institution which is encouraging conversations between their professors and students. For that reason, some institutions have already requested the use of the

App, so that they can implement it in their own universities. At the present time, the inventors of the application are applying for a protected trademark and patent.

Speaking of the contributions of the study, the mathematician Rafael Méndez remarks that with the results of two years of researching these problems, they want to change the dynamics in students with the use of self-observation and opportunities for them to improve their methods of learning. For her part, Jenniffer Lopera reminds us that recording their observations is not sufficient but the feedback which the application provides the student with will encourage the student to reflect on his or problems, become more autonomous and improve the learning process. ■

**The university has a drop-out rate of 25%, that is, one in four students do not finish their studies.**

The students find it difficult to carry out individual assignments: They are easily distracted. That also happens when they study in groups: first, because they talk too much and are absorbed in their personal interests and only later do they begin to study.



Organizing their time is a big effort for them: Some do not know how to follow a timetable or agenda of work.



In the words of the researcher Jenniffer Lopera, “we are seeing kids in the university who are very young, between the ages of 18 and 20, with problems of tachycardia, pre-heart attacks, acute gastritis, irritable bowels, insomnia, stress and depression, all linked with the demands of university life. With sound practices, there is no reason for them to endanger their health.”



“AutoObserver UR is an App which captivates the students, since it was developed with them in mind, it speaks the same language; so they feel they are being listened to and the answers are sincere,” says Méndez. “This application is the embodiment of all of these pedagogical initiatives,” the mathematician Rafael Méndez explains.



They spend too much time studying in the week of their partial examinations. At most, they should study for 45 minutes and rest for ten in each session of work, but do it in a fully concentrated way.

The students endanger their health because they do not have sound methods of studying.

