

legacy



Neus Sanmartí, a life devoted to science education improvement

Neus Sanmartí is Professor Emeritus of Science Didactics at the Universitat Autònoma de Barcelona. She specialises in curriculum development and assessment, the language concerning scientific learning and environmental education. She has taught at primary and secondary school levels and initial and in-service teacher training. She got the Rosa Sensat Pedagogy Award (2002) and the Cross of Saint George of the Generalitat de Catalunya (2009).

INTERVIEW WITH NEUS SANMARTÍ

Neus Sanmartí is well known for her contribution to the paradigm shift in school evaluation. Still, few know of her commitment to improving science education and her tireless dedication to achieving excellence in the teaching profession. Her dream was to achieve quality education for all, and she focused all her energy on improving public education. According to Google, a heroine is a woman illustrious for her deeds or virtues. We do not doubt that Neus is one for both, plus her great respect for plurality, awareness on teaming up and accompany professionals and institutions with diverse projects in her deeds.

by Ana Moreno

What would you tell us about the most personal Neus?


I was born in Barcelona in 1943. I was the eldest of 3 siblings. My father worked in a relative's workshop where they made cardboard boxes, and when it went bankrupt, he asked to be able to get by. I have always liked the mountains, hiking, camping - we belonged to a hiking centre, the UEC de Gràcia - and also travelling, getting to know other places and countries.

I enjoy reading a lot, and from a young age, I devoured books, especially from the age of 13, when I was hooked on a book by Jules Verne *A 15-year-old captain*.

I have been fortunate to have a family that we have all enjoyed and where all three of my children - two boys and a girl - have grown up. My husband died of a heart problem eight years ago. I now have ten grandchildren, five boys and five girls, who are very diverse and who bring me into contact with today's young people in a very







experiential way. The pandemic has made it a bit difficult, but even so, we have tried to compensate for the isolation as much as possible.

How did you decide to dedicate yourself to science teaching and learning? What were your beginnings?

I have always loved science and mathematics. I still remember the pleasure I felt when my teacher helped me discover algebra and how this mathematics' area made it possible quickly to solve problems. It was probably the chemistry teacher I had in the 5th year of the baccalaureate, in 1957, who encouraged me to delve into this branch of science. And my father, who worked making cardboard boxes, encouraged me to follow this career path because he already sensed that the future packaging would require contributions from chemistry. But even while I was studying for my degree, I imagined myself as a teacher in a single-sex school in a high mountain village.

I was interested in education, which I had learned about through scouting¹, and also in nature. University (1960-1965) brought me to discover a new world of political commitment and work with very different colleagues. At that time, all of us who were studying 'science' knew each other. I experienced

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struggles and changes starting at the university. At the same time, I met the man who would be my partner and my children's father. Even so, I didn't see myself as a chemist in a laboratory but at a school, helping boys and girls to discover this fascinating world of science.

And how did you start as a teacher?

After substituting at a school in the upper part of Barcelona for a year, I moved to an under construction secondary school in the Besós district. It was my real baptism and an apprenticeship that has undoubtedly conditioned my entire evolution. I was there by May '68, a time of struggle for a better world and creativity - imagination to the power! I learnt a lot in those years thanks to some colleagues with whom we came to understand each other and the undertaken from the 'Rosa Sensat' movement and its Summer Schools. We have just written our memories (and those of many of our students) about what we experienced there².

Research says that the first year in the profession marks the future of teachers, and I have no doubt that my case (and that of my young colleagues in those years) confirms this. Although we had no training in teaching, we never stopped reading, sharing points of view, looking for solutions to the problems and difficulties that arose, innovating? And that is how we have continued.

But then you went on to teach at the university. How did you get there?

The UAB was born in the 1960s, and a nucleus of people committed to a change in the school configured teaching studies. These had become university studies at that time, under the category of 'University School'. Many of us new teachers came from working groups linked to Rosa Sensat; this is why I was proposed to be part of the new project in 1965.

Even so, I thought I could not stop working at school. Plus, there was the problem the future teachers -most females- had: their professional knowledge was only discursive, and the practice centres were not always suitable. It was then when, together with other colleagues, we considered changing the model from the outset. Based on the pioneering experience promoted by Pilar Benejam, some of us teachers from the Escuela de Maestras gave classes in a primary school, which we prepared with the university students. We assisted them in the school classes, reflected on what had happened, why and what could be improved.

That was another significant experience in my professional life: the challenge in teaching, which in

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theory should be *exemplary* -with its good days and not so good ones- is enormous and needs to be well managed, especially the generated emotions.

Later, from the collaboration with the UAB ICE of the onwards, I also taught within the CAP (Pedagogic Aptitude Certificate) and coordinated the first studies of the 'Secondary Education Master', launched on a practical level in the 1990s.

Teacher Training Schools developed their university status in

1985. Then, professors were required a doctoral thesis, so I had to do it at King's College London, an adventure with my poor English. And since then, I have not stopped combining research, university teaching and contact with the 'real' school through in-service training and consultancy. I was a member of the first team in the Education Department: it promoted innovations in lifelong learning (FOPI, Institutional Permanent Formation, for example) and the coordination between the different Teacher



Training Colleges in the Catalan universities.

I wrote a book on science education, compiling my experiences³. And although I am retired, I am still active at the university as an 'honorary' lecturer. I am also involved in our research group "LIEC" -Language and Science Education-: in recent years, we have been working on developing critical thinking and argumentation and, more generally, on classroom work concerning scientific controversies. That is why I was interested in collaborating with the job done by a Delphi study: experts from all over the world participated. Its results are gathered in the report *Critical thinking and creativity. Two key learnings for the knowledge society in the era of innovation*, which can be downloaded from the Impuls website⁴.

How did you become interested in exploring how to transform evaluation practices?

In 1988 the science and mathematics teachers in two municipal high schools in Barcelona started implementing the LOGSE. The question arose: Shouldn't we also have to review the assessment? Both Jaume Jorba, from mathematics, and I, from science, had never been interested in the subject before, and we did not know other possible ways of approaching it.

But it seemed like a good challenge, so we looked for articles and possible references. At that time, a French journal⁵ had just published an article on formative assessment. It provided research results showing pupils in high schools that applied this type of assessments obtained better results in external exams than other high schools with the same characteristics.

We were very interested in the approach because it was theoretically grounded and provided evidence. So we shared our understanding of the original proposal with the teachers

we were working with: we agreed to try to apply it in their classes. This was the beginning of work that went on for eight years⁷ and made it possible to find answers to the difficulties that arose and check the results.

What were these difficulties?

The first challenge was getting the pupils to help them effectively and efficiently because a formative assessment requires knowing how to cooperate and assess each other. A second challenge was to improve their talking about science and mathematics. We, teachers, are used to deduce what a learner means in his reasoning or explanation, but their classmates do not.

That is why we set ourselves to get them to improve their ability to write science and mathematics. This work led to a UAB project. The book that brings together the research and innovations won the Rosa Sensat Pedagogy Award⁶.

After we also considered how to select the fundamental and significant contents to be promoted, for example, how to sequence the activities throughout a learning process designed to achieve them, etc. Obviously, one never finishes seeking improvements: it is a never-ending road, and there is no doubt that evaluation is the one that helps us teachers the most to rethink our profession from many angles. I have assembled good part of the experiences and lessons learned from that beginning in two books⁸, which I hope have opened a way to rethink evaluation in depth.

KEY TO UNDERSTANDING AN ASSESSMENT FOR LEARNING

For more than 30 years, Neus has worked hard to change the way teachers, students and families understand evaluation. She has undoubtedly succeeded in many cases; at the very least, she has provoked a difficult to stop wave for change.

Some of her key ideas for understanding this change can be found in her latest book *Avaluar y aprender un único proceso*, from which we have picked a small selection to start with:

Without an assessment that helps recognise difficulties and find ways to overcome them, there is no learning. The challenge is for them to learn to self-regulate. Learning to learn is learned by learning significant knowledge -related to the various fields of knowledge generated throughout the history of humanity- and relevant in the personal and social sphere -helpful in acting responsibly. Promoting students' self-assessment is, therefore, to build essential knowledge in a meaningful way that will enable them to continue learning throughout their lives and in different spaces at school.

Assessing, learning and teaching are closely interrelated, inseparable and completely merged in the educational endeavour.

Evaluation needs to be rethought. The challenge is to

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discuss the concept in-depth, knowing that what is meant by evaluation can change over time. Changing evaluation implies a profound change in terms of ideas, practices and deep-rooted emotions. Four of these significant changes are:

- Assessment that serves learning must be rewarding
- Learning requires evaluation
- The learner has to be the protagonist of the assessment
- Evaluation of results makes sense if learning has taken place

Why is it so difficult to change the evaluation?

There is considerable evidence that reorienting the meaning and practice of assessment makes good learning possible for any learner. Still, its application has not yet become widespread in classrooms. One reason for this is that there is a need for an ideological debate about the purpose of education. Do we assess competitiveness to rank students or in terms of equity to promote learning for all without giving up?

A teaching team needs to consider and fix some of the following topics:

Notes

¹ Scouting;

² Alemany, C., Escobar, M., & Sanmartí, N. (2021). *La colla del Besòs. Una experiència de compromís, il·lusió, reptes i aprenentatge*. Barcelona: Ed. Rosa Sensat (en fase d'edició).

³ Sanmartí, N. (2002). *Didáctica de las Ciencias en la educación secundaria obligatoria*. Madrid: Ed. Síntesis.

⁴ www.impulseducacio.org

⁵ Nunziati, G. (1990). *Pour construire un dispositif d'évaluation formatrice*. Cahiers pédagogiques, 47-64.

⁶ Jorba, J., & Sanmartí, N. (1996). *Enseñar, aprender y evaluar: un proceso de regulación continua*. Madrid: MEC.

⁷ Sanmartí, N. (coord.) (2003). *Aprendre Ciències tot aprenent a escriure Ciències*. Edicions 62. -Premi Rosa Sensat de Pedagogia 2002-.

⁸ Sanmartí, N. (2007). *Evaluar para aprender*. Barcelona. Ed. Graó (també editat en eusquera i en portuguès).

- Purpose. To improve every pupils' learning, consider their diversity and following equity criteria, or only in terms of grading pupils to classify them.
- What is assessed. Define the learning objectives as much in applying academic knowledge as in the more transversal competencies, cooperating, thinking, or managing emotions.
- Assessment criteria. What the learner would have to do to progress. They cannot be oriented towards deciding a qualification.
- Who evaluates. Mainly the learner him/herself, with the help of peers, teachers or family members.
- When to assess. From the beginning of any learning process. How the difficulties detected in each activity will be managed. At the end check what progress has been made.
- The tools and strategies. To collect data, analyse it and make decisions. rewarding and valuable for moving forward.
- How communication is articulated. Between learners, teachers and families by managing interrelationships and emotions well throughout the process.

After reaching agreements, it takes time and patience: success does not happen overnight. Whether the change is achieved or not depends on the teacher's art, science, technology (tools, techniques and strategies) to a large extent, and also on his or her ideology and values.





*Dear Neus, thank you
for always pursuing your
dreams, for your openness,
enthusiasm and generosity.*