project

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Universal Design for Learning. Didactic model from an inclusive perspective

UDL provides a common framework for working together to move towards inclusive and quality education

by Jordi Viladrosa i Clua

INTERVIEW WITH CARMEN ALBA PASTOR

What made you decide for this particular field of educational inclusion?

Well, the truth is that it is a complex process: first there was this vocational interest of mine when I studied for my degree, many years ago. Inclusive education did not exist by then, but I chose diagnosis and special education subjects, because the topic inspired, concerned and attracted me. That is when I made my personal choice. Then, life went on and those decisions were reinforced.

After that I started working in residences in the community of Madrid: people at risk of social exclusion or with difficulties in accessing education were studying and living. It is there that I drank not only in their disabilities but also in the needs derived from this more fragile socio-economic environment.

While I was in Madrid, I signed up as a bilingual teacher in special education in New York City: that was one of the most important life experiences ever. When I arrived there, the education system started with inclusive education. At that time, new experiences were carried out, and students with special needs were incorporated into regular classrooms in a co-teaching system: the classroom teacher and the support teacher were there. It was a pilot experience never practised before and part of a doctoral thesis research. It was about validating the model. I then also started to work with diagnostic teams and as a support teacher in the classrooms.

When I came back, Spain was at the peak of special education, and there was nothing close to inclusion yet. I got a position at the university and started teaching two subjects: special education and technology. I then evolved towards the role of technologies in educational contexts to support special needs students.

From then on, my whole career has combined personal and special education, integration and the moment we are living now, i.e. constructing inclusive teaching in practice. It should be kept in mind that inclusive education in its theoretical and international discourse has been around for many years; it did not appear with the 2030 Agenda. What has happened is that the 2030

Agenda has pushed us to achieve it in practice.

What does UDL consist of in general terms?

Universal Design for Learning (UDL) is a systemic, organised model; it is not a methodology, a theory, but a model based on the professional experience of a team of researchers linked to a Boston hospital and Harvard University, led by David Rose, at a time when education was being transformed: it was the moment the No Child Left Behind Act (NCLB) was passed (2001). They said: children come to us from schools for us to make adaptations because these children do not learn, but when we make curricular adaptations, they do; ergo, there is an error in the approach; it is not that children cannot learn, it is that what the school provides them with does not respond to their abilities.

At that time, another movement in architecture was also born in the United States: Universal Design, promoted by the architect Ron Mace. He suffered a motor disability and had personal experience finding barriers in some contexts but not others. So his disabilities did not depend only on his characteristics or abilities but on his interaction with those contexts.

This idea of universal design stroke a chord and connected with the concern of the CAST (Centre for Applied Special Technology) team, with David Frost and Anne Meyer, among others. They understood that this same formulation would be valid for education: i.e. part of the barriers students face in learning is not due to their characteristics but because teachers do not provide them with the right context, resources, materials, or activities, that made it possible for them to learn.

So what tools do we have? We don't have as in architecture, escalators, or as in technology, screen readers; but we have the curriculum and we can make decisions for teaching being accessible and students be able to learn. Based on a review of the scientific knowledge on teaching, a model is created taking three factors as a reference:

- Affective or emotional factors (affective networks),
- The informational component, the knowledge has contents and information to be elaborated,
- The strategic component, the actions that learners do to relate themselves to the information and, thus, construct learning.

It is therefore a didactic model: fit leads toward practice at the level of educational intervention, organisation, etc.

The truth is that UDL has a significant background experience because of the context. It arose from a group of researchers at MIT (Massachusetts Institute of Technology) and Harvard University, to which Gardner, for example, is closely linked. Vygotsky, Bruner, Novak, Ausubel are also important. Constructivist theories are present in the student's active role in the construction of learning. In this way, many of these researchers work together when constructing the UDL discourse with a global vision. A priori, they do not seek confirmation but explore what is valuable, what works in education, and what educational practice has shown to work for learning, not the other way around. Their review of the scientific basis of teaching identifies what teachers and researchers say works in educational practice. From that, UDL is constructed; there is no prior theory they want to demonstrate.

It's not that children can't learn, it's that what the school provides them with doesn't match their abilities

Instead, they start from what teachers do, which is the key element of the process. This is one of the great values of Universal Design for Learning: it gives visibility to knowledge derived from educational practice.

How do the principles governing the UDL relate to neuroscience?

Advances in neuroscience, especially those based on diagnostic imaging, have contributed to a better understanding of what goes on within our black box, which is the brain.

In a way, neuroscience informs and gives us clues about the uniqueness of the learning process, i.e. the role of the different neural networks in learning and the effect that other tasks have on the brain. Not every job is performed in the same part of the brain. So, suppose there is a part with difficulties, slower in its functioning or even less developed. In that case, those tasks will be more difficult or easier than if they were processed in other parts. In other words, neuroscience provides us with information for our teaching decisions to be based on.

To the extent that we understand how this works when analysing what happens in practice, we can have elements to better understand why a student does not learn. Perhaps it is not because they are lazy, but because they may have a perceptual problem that does not allow them to process the information, and if one does not process the information they cannot construct a learning process. These difficulties may derive from perceptual-auditory challenges, for example; if you can't hear the data, you can't process it.

Neuroscience has helped us to better understand the learning process and I think that is one of its great values. At CAST, Dr. Rose and part of the team are neuroscientists, so this is one of their areas of expertise. It has allowed them to use neuroscience models to create the UDL model; hence, all the information

is organised around three neural networks. UDL is based on the role of these neural networks in learning processes, which, although they intervene jointly, are viewed separately in their approach. As in practice they co-occur for them to be coordinated, we need to go deeper into each of them and so this is what UDL provides: information to better understand teaching and learning and, in addition, a sensible framework when it comes to organising this information.

Once information is obtained on what is involved in the affective part of learning, what is in the more discerning part to activate those networks, and finally, what is most involved in the processes of action and expression of learning, then you have a structure, which is useful when analysing educational practice.

To what extent does the UDL find a firm path to implementation thanks to current pedagogical innovations?

I think that UDL wants to bring together the components that have already been revealed to work in teaching. This is compatible with every innovation we want to blend into teaching: it can be gamification, flipped classroom, all kinds of methodologies. The UDL is not something closed; it is not the very same thing ever: no, it is a structure, a scheme of thought where we can incorporate these methodologies, but in a meaningful way. In other words, it offers a system: What do my students need? What is the nature of the knowledge they need to acquire? Obviously, it will not be the same in mathematics as in physical education, plastic arts, or science; all these methodologies and innovations need to be preceded by the analysis of the context, the students, and their needs, the itineraries they may have to acquire this learning, and from there, what methodologies are the most appropriate for this learning.

One of the great values of Universal Design for Learning: it gives visibility to knowledge derived from educational practice

First, we have to lay the goal: what learning my students need in this subject or what learning will be this year. And from there, I integrate the innovations to do something with gamification, but maybe I don't need it for everything. Project-based learning is fabulous, but I surely need repetition, practice, and execution for specific learning such as spelling or multiplication tables. I may then need games, challenges, doughnuts, and autonomous games.

The important thing is that the UDL gives you that framework to better understand the process. The UDL has become widespread because of its wisdom and its validity within educational contexts. But it does not say what you have to do: it gives you the keys to think about when planning an educational action, teaching, school or teacher coordination, curricular measures, and curricular adaptation measures.

In short, learning, students and their context, are the key for me to

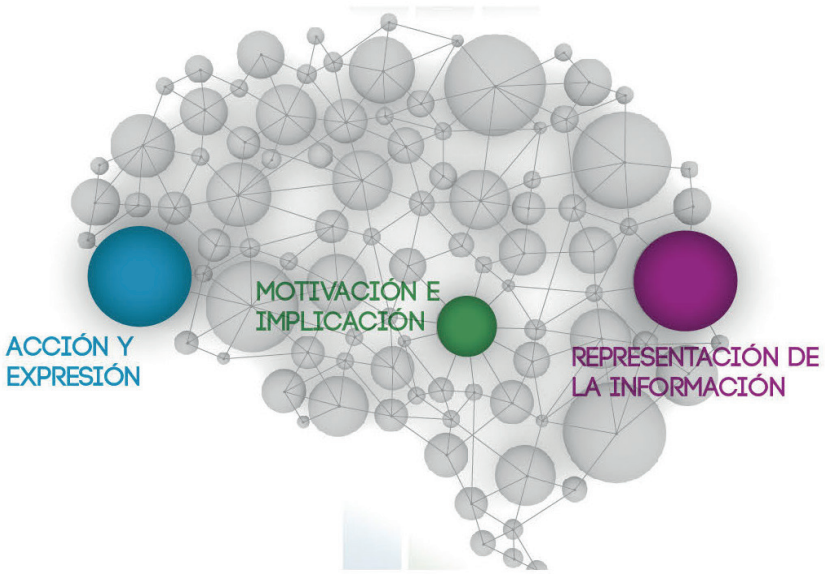


Figure 1: Neural networks and UDL

One of the main barriers is that they are isolated experiences that are not part of a strategic plan for the centres

planning the school's curriculum and the organisation. That is where universal design comes in to facilitate this process.

In your book "Universal Design for Learning: Education for All and Inclusive Teaching Practices", you address the universal character of UDL. Has this universality been achieved? What barriers have you come across, and how can they be overcome?

It is a book I coordinated with a research team. In it, we raised our vision of the UDL once we studied it from CAST, a research project we had fulfilled in some centres. Since then, we have done activities with many teachers and with teacher centres, in addition to literature reviews.

Right now, the presence of the UDL as a model for analysis, reflection and planning is anecdotal. I mean, although some teachers apply it in their classrooms, it does not imply a transformation of educational practice at a global level.

One of the first and foremost is that this is developed voluntarily. A person likes this subject and goes ahead with it. But education is a process that has to be accomplished every day together with every other teacher. This should be the outlook, so this is why this is one of the main barriers: they are isolated experiences that are not part of a strategic plan for the centres, that they are not done in a coordinated way; and also, there is no real training for the teachers' needs, not only to apply UDL, since UDL is not the goal: it is a strategy that can mediate supporting the centres in their transformation or in their consolidation as inclusive centres. It is not that inclusive education is a panacea, but quality education requires being inclusive.

There are also conceptual barriers to understanding that inclusive education cannot be done individually; also some organisational barriers: unless we all work together, we won't be able to reach this goal; and finally, other training barriers: unless every professional in education gets some training on dealing with diversity, on how to carry out inclusive education, it won't be done. This is where the UDL is a tool to do this in a shared way.

"EducaDUA" website is a formidable space for making the UDL known. What impact do you think the website you created has on educational centres?

I think that the "educaDUA"· website has become a support website to gain access to valuable documents for those who want to learn, read and find tools for the learning process.

We are delighted because this network, born out of a research project, continually expands and strengthens. A year ago, it seems to me that we had more than 500,000 visits or more, which means that now we may have 600,000 visits from all over the world. We have visitors mainly from Spain and many Latin American countries, including Chile, Mexico, Colombia, Uruguay, Paraguay, Peru, and even from China and the United States. It is striking and, of course, it is a great satisfaction for the educational centres to contact someone working in this area and who has information there that we have been updating and we intend to improve.

What are the objectives to be achieved of DUALETIC and the role of IT in this project?

From the moment we started the project in 2011 until now, the experience confirmed something stated in the first texts of the UDL and

www.udlcenter.org

that CAST itself highlighted. We got to CAST somehow because we were working on technologies, or rather, the accessibility of technologies for learning. It has been my research topic since I became a professor. By looking at how to make technologies accessible to all students, we came to CAST through this project (Dualetic).

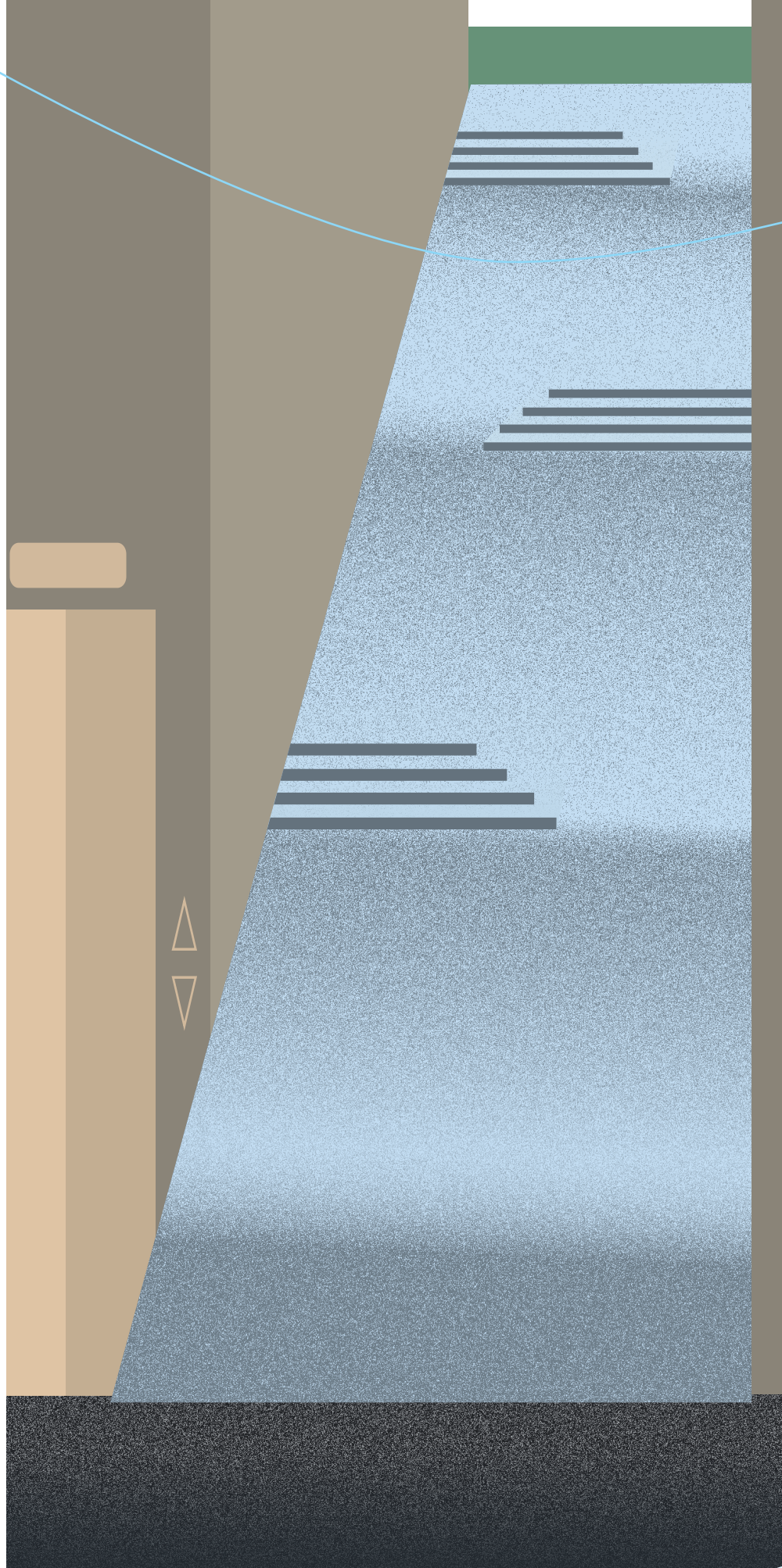
One of the research results is that technologies are essential for some students because they allow them access to information, resources, learning contexts, etc.

On the other hand, we are facing our society's digitalisation: technologies have become an element which is part of our culture and, as such, they have part of the students' training for them not only being mere consumers of technology but also using them as helpful tools in their thinking, communication, construction of their learning, for expression; they must be able to be proficient in the languages and codes technologies use and have control or a certain mastery so that they are an element in their process.

Having said that, technologies can greatly enrich learning processes as they give access to unimaginable worlds: taking the NASA website and seeing a stellar phenomenon live; carrying out chemical simulations that we have never imagined; we can visit any art museum in the world. They are so rich that it would be unthinkable to have education without technology nowadays, as they contribute to improving it.

However, UDL and inclusive education are not synonymous with technology. Teachers promote precious learning processes that have to do with speaking, relating, reading, expressing oneself, which have no relation with technology.

To conclude, how can the UDL model contribute to achieving Sustainable Development Goal 4 in the 2030 Agenda? What strategic actions should be prioritised?



Teachers cannot continue to work in isolation but we need to understand that all our work has to be based on coordination

To rephrase what I have said, the UDL helps us with something truly unique in all these years of educational practice. It is a global and systematic model based on scientific evidence and educational practice: it recognises the developed knowledge achieved by teachers and their experience, and the UDL regulates it. That is why it is a model we can share, even if we do not know each other. We have to start working together within an educational team, an educational community. We can talk about common issues and ask: are we working with our students for them to grow in self-evaluation and mature in strategic networks so that they know how to communicate with different resources? That allows us to have a structure, a framework and a common language to work as a team.

I would start by giving a diagnosis: if you don't know where you are, you don't see the needs, the shortcomings, or the difficulties, so it will be challenging to make progress. Secondly, a strategic plan, i.e. an improvement plan and the UDL, can be helpful. Use tools to analyse or evaluate the inclusive environment of the centres. In addition, the UDL also speeds the next step: implementing specific measures to change practices. And among them, teacher training will always be present: we will identify the teachers' shortcomings to react with the quality required by our students, by all of them: with specific needs, with special needs, because they are simply our students.

All of this requires another of the significant issues in education: we have to evaluate and follow up from time to time. We carried out an informal study with 80 schools in Madrid and asked them which measure helped them most in the work of inclusive education; we all thought that it was going to be curricular measures or adaptations; they were but overwhelmingly- with 85%- we realised something that is fundamental: coordination. Us teachers cannot continue to work in isolation but we need to understand that all our work has to be based on coordination and we have to have it frequently.

And in all this work, the UDL is a didactic approach to inclusive education and a framework for advancing practice in classrooms and schools in a shared way.