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## Cognition, Inclusion and Plurilingual Education

### Summary

This paper presents a proposal that brings together different strategies aimed at promoting student learning by optimising the functioning of working memory and the creation of different educational scenarios that act in favour of global learning and cognitive development from a multilingual approach. Didactic elements, methodologies and metatheories are combined and applied to school tasks, activities and situations to create a social learning environment that favours inclusion and the development of a comprehensive awareness of learners.

**Keywords:** Cognition, social-emotional learning, cognitive load, inclusion, multilingualism.

Poznanie, inkluzja i edukacja wielojęzyczna

### Streszczenie

W artykule przedstawiono propozycję, która łączy różne strategie mające na celu promowanie nauczania poprzez optymalizację funkcjonowania

pamięci roboczej i tworzenie różnych scenariuszy edukacyjnych, które działają na rzecz globalnego uczenia się i rozwoju poznawczego z podejścia wielojęzycznego. Elementy dydaktyczne, metodologie i metateorie są łączone i stosowane w zadaniach, zajęciach i sytuacjach szkolnych, aby stworzyć społeczne środowisko uczenia się, które sprzyja integracji i rozwojowi wszechstronnej świadomości uczniów.

**Słowa kluczowe:** poznanie, uczenie się społeczno-emocjonalne, obciążenie poznawcze, inkluzja, wielojęzyczność.

## Introduction

To successfully instruct – in the hope that our students will learn – it is essential to stimulate their minds. For this to happen, we must first of all provide a learning environment where two basic elements are needed: firstly, it must be inserted in a *context* to which it is linked and in which the cognitive practice will be developed and, secondly, a *community of practice* must be created in which everyone works but not all students do the same thing at the same time; on the contrary, each one develops some activities, tasks and work at the pace they want, in the sequence that is favourable to them. It is important to respect every one's learning rhythm and preferences, as this addresses diversity and helps to incorporate inclusion in the classroom.

## Learning in the 21<sup>st</sup> century

In the 21<sup>st</sup> century, we teach not only with the mind, where reasoning and cognitive activity take place, but also with the heart, since emotions are involved in learning as well, and with the body, because students also need to learn in a kinetically active way. We cannot separate our being into different components: mental, emotional, and physical, as it is a single entity that manifests itself on these different dimensions.

In order to achieve the simultaneous work of our different “selves” (the components of our being on these different levels), we also need to adapt the environment where we teach and learn. It is not possible to continue working with such a different conception in a space that was adjusted at the time to another more traditional methodology with the wish that it continues to be operative today, since we apply a very different methodology: new approaches require

new spaces and layouts. For a methodology based on group work and requiring movement, educational spaces with chairs and tables arranged in rows and columns, where active communication and interaction of group members is not favoured, are not useful anymore. Therefore, the educational environment must be adapted to our methodology in order to obtain maximum performance.

The concept of the classroom must change, to provide more creative, motivating and stimulating learning environments: *new times, new classrooms*. Learners cannot be kept still, seated, and silent all the time, especially in an environment where communication is to be promoted and where the aim is to work simultaneously with the body, the mind, the emotions, and the ability to reason. But it is also about building knowledge in a social and emotional way, which inexorably requires a real and lively interaction with others, a capacity for movement within the classroom. Therefore, we are talking about creating a group dynamic where cooperative work strategies can be developed, in which everyone works on the same aspect, involving themselves in the learning of their classmates, and collaborative work, in which the work is distributed among the members and in which each component already has some instruction and works on a different and specific aspect of the task to complete it. This strategy helps to address diversity because each member contributes from their perspective, their understanding, their abilities and according to their level of knowledge development, which provides an inclusive educational approach in which everyone has a place and collaborates, regardless of their characteristics.

All these measures are aimed at a process of continuous construction of learning in a social context, since the knowledge that is gained takes on a special meaning and purpose when it is embedded in a particular culture and context, as proposed by the axioms of situated cognition. In this same process, the idea of scaffolding comes into play, allowing for the construction of one's own knowledge within that particular social environment and context of practice, but basing new training and instruction on preconceptions, skills and strategies that one already possesses and which act as a foundation and receptacle for new learning.

### Cognitive load

Another of the pillars of the methodological proposal we are presenting is John Sweller's Cognitive Load Theory (1988). According to his research, our working memory (or short-term memory) is the element that enables the mental processing of information; it is responsible for elaborating thought and acts, to use a computer simile, like a RAM memory in our brain. But its capacity

is very limited: “Working memory, in which all conscious cognitive processing occurs, can handle only a very limited number – possibly no more than two or three – of novel interacting elements” (Paas, Renkl, Sweller, 2003. p. 2). Long-term memory, on the other hand, is the (almost unlimited) capacity of our mind to store, like a hard disk in an electronic device, all the information that has been previously processed in our working memory.

What this approach makes clear is that the context or environment offers us an infinite number of stimuli as well as an unlimited amount of information and our long-term memory allows us to store an almost unlimited amount of information. But in this process, our working memory acts as a bottleneck through which information must be treated before it can be transferred to our mass storage. Once there, it can be retrieved or discarded (depending on its relevance).

To simplify the management of information in short-term memory, we normally synthesise, aggregate, and combine the information stored in our long-term memory to work with “clusters”, chunks or fragments of combined information automatically, as one would do when compressing a computer file. This makes it easier and less demanding on the working memory. For example, when learning to read, we first learn the letters and their associated sounds, then we must learn their blending rules and then their prosodic features. Once this is done, when encountering a word, our mind does not read letter by letter, but retrieves from its long-term memory the structure of a word and in this way, a text is processed much more easily in our working memory. Every learning process involves a commitment of working memory that is impossible to avoid: this is what is known as *intrinsic load* in cognitive load theory. And this load can be handled with greater or lesser ease, depending on the processing capacities of each human being.

In foreign language learning, intrinsic load can be observed in the difficulty level of grammatical structures or the complexity of sentence constructions. For example, learning the intricacies of verb conjugation in a language like Spanish or understanding the word order in German can pose significant intrinsic load. These challenges arise from the inherent complexity of the language’s structure and require learners to allocate cognitive resources to comprehend and apply the rules effectively.

The problem arises when the limited capacity of our working memory contains also information that takes up space but does not help us to learn what we are working on; this is the unfavourable cognitive load which, in Sweller’s terms, is called *extraneous load*. The teacher’s task should focus on facilitating learning by minimising this extraneous load and allowing the learner to manipulate the intrinsic load as possible. As Sweller, Ayres and Kalyuga (2011,

p. 68) state, “Cognitive load theory has been concerned primarily, though not exclusively, with reducing extraneous cognitive load”.

Extraneous load can arise from distractions or irrelevant information that diverts learners’ attention away from the core learning objectives. For instance, if a language learning app or program includes excessive visual or audio stimuli that do not contribute to the learning goals, learners may find it difficult to focus on the key language components they are supposed to acquire. This extraneous load can hinder the learning process and reduce the efficiency of acquiring new language skills.

There are times when the task or learning demands so much intrinsic load that the learner may feel overwhelmed because his or her capacity is not sufficient to cope with all that is required. In addition to this fact, there are probably factors in the task that add extraneous load, so that their capacity is even more diminished. In this case, teachers must facilitate the work through different strategies, such as those listed by Lovell (2020): pre-teaching some issues, use of subject-specific vocabulary and subject-specific skills, the facts and sequences in a series, the elements involved in something..., or segmenting the assignment itself, turning it into two or several simpler ones, so that each one of them is a sequence of the previous one. These strategies will allow fragments or chunks of information already stored in long-term memory from the internalisation of the previous activity or pre-learned knowledge to be used. To do this, it is advisable to first prioritise the skills necessary to achieve the educational objective and to create a scaffolding that allows knowledge to be developed through learning that does not saturate the capacity of our students’ working memory.

An example of this might be simply to ask one of our students to invent a telephone conversation with other classmates in a foreign language in which they ask for a specific piece of information. In this activity, many skills come into play which, taken together, can overload the working memory of the learners involved:

1. Lexical units with full meaning (nouns, verbs), which are easy to define and understand.
2. Lexical units with grammatical meaning (prepositions, conjunctions, etc.) which allow the previous ones to be joined together, which are more complicated to define, and which do not have a clear meaning but a grammatical function.
3. Differentiation and internalisation of sentence types (declarative, interrogative, explanatory, exhortative) according to their characteristic elements and structures.
4. Internalisation of standardised constructions of words with their own communicative function.

5. Analysis of these communicative constructions in their constituent elements.
6. More complex structures from the rearrangement of the elements already seen and understood.
7. New complex structures constructed by the learners from elements already known and stored but recombined through the creativity of the speaker with a new function.
8. Addition of elements of everyday communication (idioms, phrasal verbs, connectors...).

But to avoid this, we can break down the conversation into examples of simpler communicative functions which allow the necessary scaffolding to be acquired in order to finally construct the conversation, or only ask them to complete some of these steps.

The third type of load that comes into play is the so-called *germane load*. *Germane load* refers to the cognitive effort or processing that is dedicated to constructing and automating mental schemas or cognitive structures. It is the part of cognitive load that is associated with meaningful learning and the integration of new information into long-term memory. *Germane load* involves engaging in deeper processing, making connections, and actively organizing and restructuring knowledge. This type of cognitive load is considered beneficial because it contributes to the development of expertise and the transfer of learning to new situations. In other words, *germane load* represents the mental effort invested in processing information in a way that promotes understanding, problem-solving, and the creation of mental models or schemas. It is distinct from *extraneous load*, which refers to unnecessary or irrelevant cognitive demands, and *intrinsic load*, which is inherent to the complexity of the learning materials or tasks themselves.

*Intrinsic load* and *germane load* are related but very distinct concepts: *intrinsic load* is static and independent of the learner's actions, and it is determined by the inherent complexity of the learning material, while *germane load* is the cognitive effort invested by the learner in actively processing and integrating that material. It is influenced by the learner's engagement and deeper processing strategies.

When learning a complex grammatical concept like subjunctive mood in Spanish, the inherent complexity of the concept itself contributes to the *intrinsic load*. The complex rules and usage of subjunctive forms create a high *intrinsic load* for learners, demanding significant cognitive resources to understand and apply the concept accurately. *Germane load*, on the other hand, comes into play when learners actively engage with the concept to facilitate understanding and retention. They might create meaningful associations with specific triggers

or contexts that signal the use of the subjunctive. They may also engage in extensive practice, construct example sentences, and actively seek out opportunities to apply the subjunctive in conversation. These efforts contribute to the germane load as learners actively process the information, construct mental models, and integrate the concept into their existing knowledge structure.

An example: Let us imagine a native Spanish learner who knows German well and wants to learn English. As both languages come from the same primitive language (Proto-Germanic), he or she notices that they have remarkable lexical and grammatical similarities, since they share the order of the sentence, the precedence of the adjective, the use of the genitive, etc. In the same way, he or she checks the phonetic differences, although the written spelling and the acoustic image of the words have a certain similarity. When the third language (English) is put into practice, the germane load will be optimised because it integrates mechanisms already known to the generation of his or her utterances and also when interpreting, at the moment of comprehension, the utterances of others. In the same way, he or she will be able to maintain the phonetic differences established by opposition between the two languages. Parallelism enables him or her to associate German with English in a simple way (by means of similarity or opposition-based relations), so that his or her learning should focus primarily on the integration of the intrinsic load (peculiarities unique to each language). If the teacher helps to reduce the elements that increase extraneous load (distractions, sensory, emotional divergences, etc.), learning will become an easier process. If, by contrast, there are situations that increase the extraneous load, the learning of the third language (English) will become more complicated.

While learning, it is important to pay attention to another aspect: the elements that interact and consider the relationship between them, as all of this must be processed in working memory. An activity that involves the mastery of several pieces of information simultaneously can be cognitively very demanding because its elements and how they are related to each other will establish the greater or lesser difficulty of the task. For example, let's imagine a foreign language task in which a picture showing a mountain and a flower called "tajinaste" has to be explained: Locating a picture of a typical plant from the Canary Islands (tajinaste) in a picture, describing it, knowing its features, explaining where it is and why it is there, can be complex if one is not aware that tajinastes grow only in the Canaries, where the Teide peak is located, at a high mountain altitude. If this information – or part of it – is automated and linked in a cluster in our long-term memory because the relationship between the elements has been established beforehand and it is known what kind of relationship exists between them, the task will become easier.

In the end, all the interacting elements of learning are the source of intrinsic load, extraneous load, and germane load. The more elements interacting, the more complex the learning will be and the more challenging it will be for the learners too because it contains many elements that must be processed simultaneously. The more prior information you have, the easier the task will be performed because the learner will be able to retrieve more information from his long-term memory; this is information that is already automated and stored in their memory. If in teaching the teacher clutters the activity with too much extraneous load, it will become a task that may overwhelm the learner and therefore, lead to failure.

In a CLIL or a multilingual approach this becomes even more complex because the subject content is on one side and the foreign language content on the other, so the different types of interactions between elements multiply, as the contents of the subject are combined and integrated with those of the foreign language. In this methodology, the subject of Natural Sciences provides the contents of linguistic interaction; they are merely an excuse to work on language which, in turn, shapes linguistic interaction by facilitating the practice of the linguistic contents of the foreign language (in an educational *do ut des*).

By way of conclusion, it can be stated that the intrinsic load is unalterable because it belongs to what is learned, but it can be broken down or sequenced to lighten the work and facilitate learning. Extraneous load can be counterproductive for learning if the teacher does not know how to help reduce it or control it because they might not be teaching adequately. And germane load can act positively in favour of learning if the teacher knows how to encourage and facilitate learners' processing and integration of information through good praxis.

### Can we reduce cognitive load?

On too many occasions, teachers get carried away by their global vision of the content and tend to provide more information than necessary. This information, far from contributing to students' education, generates *cognitive noise*; it is a way of increasing the extraneous load with divergences towards related content which prevent them from focusing attention on the specific concept they want to transmit and work on.

We will try to illustrate this statement with an example: many times, when working on the adverb "never" in the Foreign Language – English class, teachers take the opportunity to explain the remaining adverbs of frequency because in their minds teachers are able to analyse and understand the analogy that these words have with each other (because of their function, their use, their sequence



in the sentence, etc.) and they begin to pollute the scene with a list of adverbs which, in almost all cases, leads to an overload of the working memory because the intrinsic load is considerable and to this must be added the extraneous load (due to divergences between elements) and the germane load which tries to manage relations and manipulate relations between new concepts and others already acquired.

We are also prone, as teachers, to produce excessive visual noise. We sometimes find classrooms full of visual elements that have a negative impact on attention; the excess of visual stimuli causes a contamination that for many learners is negative for learning and this type of perception can also cause an overload of the cognitive capacity of the working memory. For this reason, it is essential to try to reduce the **signal-to-noise ratio**.

On the other hand, another enemy of learning is excessive speed in the delivery of the curriculum. Generative strategies must be allowed to be put in place, in other words, what we call “**stop and think**”. This concept consists of stopping the pace, eliminating rushing, and allowing conscious, serene and full thought in order to elaborate linguistic productions, thus reducing the cognitive load of distraction or divergence focused on response time.

Another of the axioms on which the proposal is based is that of writing brief and simple starting level passages. Through “**write concisely**”, elementary written texts are generated by the students which will gradually allow the elaboration to become more complicated (through the appropriate scaffolding) in different ways: longer texts, more precise texts, texts with different levels of depth, texts with different degrees of formality, etc.

Scaffolding strategies are fundamental to promote solid and positive learning which, at the same time, generates confidence in the learner. To this end, it is useful to provide material that facilitates the resolution of activities and tasks: examples of solved problems, vocabulary lists, examples of useful expressions and glossaries, visual maps, etc. But it is no less important to avoid – on the part of teachers – falling into the trap of asking students for analogical solutions or for them to be able to extrapolate certain conclusions on their own, since – depending on their age – they will be more or less capable of working with these abstract concepts. It should always be borne in mind that learners who are new to a language need to build up their learning with the help of the scaffolding strategies provided by their teachers but are not yet ready to draw complex conclusions and extrapolate them to analogical situations.

The typical request: “How would you do [X]?” where [X] refers to any situation: “ordering a soft drink from a waiter”, “asking for one more size of a T-shirt in a store”, “ordering a particular item in a specialised shop”, etc... and waiting for them to answer will be of little help to us in the early stages; it is much more

profitable and advantageous in educational terms to provide students with a model that they can analyse, manipulate and recreate to apply successfully in those situations than waiting for them to invent one with the consequent risk of building it wrongly and having to re-build it starting from a failure.

Even in the native language, children need a linguistic model to copy if they are to interact with other speakers. Asking them to make a phone call (with the aim of teaching them how to do so) can be very embarrassing for them. But this embarrassment is due to the insecurity they feel because they have not mastered the sociolinguistic structures involved in that specific communication situation. This feeling will disappear when we provide young learners with these communication tools through examples that they can copy and apply in a simple and immediate way. After doing so, this embarrassing and perhaps even stressful communicative act will become just another everyday act of linguistic interaction between peers (because they already master the same strategies as their interlocutors).

The possibility of working in a group, either collaboratively or cooperatively, also reduces the cognitive load. The characteristics of these modalities of **group work** have already been discussed above. What is actually positive about group work is the social awareness it promotes and the fact that it provides students with a working context in which they all share interests and feel involved in the development. It is the most reliable way to work on inclusion in the classroom; everyone has an opinion; everyone works according to his or her abilities; everyone contributes to the group from his or her point of view; everyone belongs to the group and is part of a whole. Everyone works for the integration of others.

There are also a series of **cognitive aids** that help to consolidate learning: checklists, solved problems, glossaries, concept maps and relationships, etc. These are some examples of this type of cognitive support whose purpose is to give the final adjustment to learning in order to help it become fixed in long-term memory, because it is not only necessary to provide information, but also to help learners to be able to handle and store information properly in their minds, in order to convert it into knowledge when necessary and possible.

### **The importance of germane load**

How can we turn everything we have seen so far into lessons? Obviously, the centre of this approach around which all the elements revolve are the students, but as an aspect especially linked to the students, we consider the task as the core of the teaching-learning process; not repetitive, boring, and endless exercises

and activities, but tasks that belong to a context and have the exercises implicit in them.

Learning must always have an application in context; in this methodological proposal related to situated cognition we avoid falling into the abstraction of concepts and knowledge to be treated outside their context of application where, in addition, it is implemented and has full meaning. It is in this application that information and learning acquire the power to develop competence and constitute knowledge.

A very basic and rudimentary example of situated learning might be that which a baby experiences when his or her mother or father sits him or her in the highchair, puts a bib on and starts to smell food, hears the cutlery rattle, and so on. This context begins to situate a learning process that, over time, will be consolidated as a habit that will accompany the person throughout his or her life, carrying with it all the experiences and learning stored from that moment onwards.

In the field of language teaching, if a group of learners do not work on contextualised discourse, but on unconnected sentences devoid of context and application, they will not be able to reduce the cognitive load or to synthesise chunks of information that will allow them to automate the information for real applications.

The proposal is that knowledge is situated in a given context and is part of and a product of that context and its culture; a culture within which it is developed and used. It could be concluded that the purpose of this type of learning is to belong to a community of practice that possesses a particular culture; a community that is not only a social group in which one practices in order to learn, but – as in real situations – in which one learns in order to put into practice.

It is important when developing this type of proposal that teaching becomes also educational research: “Teaching as Research”. In all our designs there should be innovative and motivating proposals, such as the application of ICT (creation of a webquest, an activity based on gamification or social networks, videos, etc.), or where the creation of posters, leaflets, pamphlets and other informative text formats is stimulated, such as the following.

A LEAFLET (example):

### How to **save energy** in our school?

- **In this particular school, to save energy we must:**
  - **Switch off the lights** when leaving the classroom
  - **Close the windows** if it's getting cold
  - **Open the blinds and the curtains** if it's cloudy or if it's getting dark
  - **In the summer open the windows, don't use air conditioning**

Figure 1. A Leaflet (example).

The above self-created example is inspired in activities proposed by Lauder et al. (2022) in their textbook CLIL World Social Sciences 5, from the 6-level textbook collection CLIL World Social Sciences designed for Spanish bilingual schools.

In such an assignment it will be necessary to use, on the one hand, the contents of the subject, the Sustainable Development Goals, the foreign language, ICT. And here, in addition, creativity must be used to elaborate the layout, to complement the information with images, to use a striking typography, etc... Thus, the combination of elements covers a wide spectrum of strategies that involve a considerable cognitive load, but through group work we can help to split and lighten the management of it.

Many of the activities that we teachers propose in class have a clear meaning, but a clear meaning for us, who have our own way of thinking, of understanding the world, of learning, of establishing relationships between contents and concepts... But it does not necessarily match -and, in fact, in most cases, it does not match- the approaches that our learners have in the classroom. What we propose makes sense and we all perceive it, but it may not have meaning for our students. For this reason, one of the most important aspects for the development of effective learning is to provide tasks and activities with sense and significance, that is, to integrate learning and experience, which is nothing more than trying to ensure that what we practice makes sense to our students, but that it is also meaningful to them. This is achieved when what is learned is put into practice, in such a way that the application of the proposed learning to reality is appreciated, an idea that is directly linked to the development of competences and to the experimentation of learning. The clearest example is that of the multiplication tables: the fact of knowing endless lists of multiplications

does not mean that they know how to apply them to reality. The connection of these concepts with the real application of learning is established when children discover that, if there are six little friends and each one has four sweets, together they will get 24 sweets. Far away is the unconnected  $6 \times 4 = 24$ , which makes sense but lacks meaning. And the same goes for so much other learning: is there anything more contrary to a sound than a musical note? Does knowing the theory of the Saxon genitive, which is a grammatical learning (by nature abstract and therefore difficult to understand for children up to a certain age), actually prove useful and meaningful to any child when confronted with a natural and spontaneous communicative act? Did any native English speakers learn it before they knew how to use it? All native speakers of any language in the world who learn their language from the time they are babies do so by participating, experiencing the communicative act freely and spontaneously through interactions and trial-and-error interventions that are meaningful and, of course, significant to them. The work of the school should focus on fostering this kind of learning process.

Directly related to inclusiveness and attention to diversity is the fact that not all children learn at the same time or in the same place. Each person has their own rhythm, a different way of understanding the world and of fitting into it; everyone has their own way of learning, and it is very important for each one to know their own mechanisms. It is very important for learners to develop a knowledge of metacognition, since by knowing how I learn, I can optimise the process and, as a parallel effect, I will know how to regulate my own learning. Self-regulation is understood as the process by which we control our thoughts, impulses, emotions and actions (Baumeister, Vohs, 2004), and through certain mechanisms, we manage to evolve to a new level. This evolutionary process depends to a large extent on how cognitive processes guide the actions and behaviour of the learner, contributing to the ongoing monitoring and control that enable self-regulation of learning. The teacher must help and favour the process through which each pupil learns to know their cognitive capacity, their characteristics, their organisation and other factors in order to develop a metacognition that helps them to self-regulate.

The mental configuration of each learner must be respected because their learning abilities depend on their working memory, their capacity for control, the knowledge and experience they possess, their behavioural mastery, etc. And these are too many factors to naively expect that all learners in a group have the same characteristics and learn in the same way.

Obviously, this diversity in the classroom makes it possible to work on fundamental aspects for the development of a 21<sup>st</sup> century social conscience, as it offers an ideal scenario for fostering cooperation: working in groups of

people in which there is a rich diversity makes it possible to get to know very different identities, natures, and contextual realities, and this facilitates inclusion and a sense of belonging. On the other hand, working on these differences in the classroom also contributes to developing empathy. In reference to this concept, we wanted to give our approaches a special touch linked to the ability to understand and share what other people feel from an early age (when it is already possible to do so, in accordance with the evolutionary characteristics of the learners). When we talk about an African legend about a bird that brings rain and has the head of a hammer (*Thekwané*, the hammerhead bird), why not get together in the classroom as if it were in our village in Nigeria and eat some millet to better understand how those people feel when sharing a story between children, young and old? Why not listen to some of their folk songs and try to dance like them? Why not learn to value what for other people is their context?

These kinds of cooperative group activities involve the work of many different disciplines simultaneously (in different languages as well) and provide students with a comprehensive training in various axes of human nature that will enable them to understand and embrace social differences through their empathy.

The ideas that are intertwined in this proposal are all related: if we teach Social Sciences and learn things about other places and other times; or when we learn Natural Sciences and observe the different manifestations of life and the planet, and how it has evolved over time, we are also accepting the inherent diversity of the World, and this favours the work of specific contents of each subject. Naturally, these contents are paired with a specific vocabulary and a series of very concrete elements that participate in the learning process. In doing so, we are making students literate in a series of contents, in the way they are acquired and manipulated, but also in how they are applied to real life. Hence the idea of working a “Subject Specific Literacy” that we propose.

And, of course, it would not be coherent to speak of a single working methodology in the classroom; if there is diversity in the students, because each one has its own cognitive characteristics; if there are differences in the subjects because each one has its specificities and, if there are different working contexts, there is no other option but to combine methodologies in order to respond to the needs of each learner and to meet the expectations of our demands. In this respect, Paniagua and Istance (2018, p. 22) state:

*Pedagogies need to be understood holistically rather than broken down into unconnected practices and techniques – hence the focus on combinations, clusters of pedagogical approaches and networks. Looking beyond the effectiveness of specific teaching methods, there is need to understand the power of these when combined. (p. 220)*

It follows from this statement that the best educational outcomes occur where methodologies are applied in a complementary and combined manner, rather than as isolated and unconnected attempts to work on decontextualized, isolated, and fragmented concepts. Due to the wide diversity of students, it would seem logical to propose methodologies that are the more varied the better, in order to meet the needs of each one, as different people with different mental configurations and different abilities will require different approaches, methodologies and resources to be able to work successfully with the proposed contents.

Traditionally, both language learning and CLIL integrated learning have been focused on a lexicon that allows us to know the names or labels of things, actions, qualities, etc., neglecting the concept of discourse, which is the element that gives meaning and exemplifies the use of the elements, as well as providing functionality and applicability to the structures. This is, moreover, what gives meaning and significance to what is being worked on. It is more important to use a language developed by the learners themselves which has a greater communicative capacity than to use technical words and artificial statements which lack spontaneity and social communicative power. The transmission of messages becomes a challenge that enables the exponential academic growth of the learner. It is not far from the generative approach in which creativity is implied as an indispensable combinatory element. This same process can be applied to many other disciplines: in Barcelona there is a jazz school (Sant Andreu) where jazz musicians between the ages of 8 and 21 study. The learning system consists of the same approach: each musician listens to and copies a musical fragment and, after internalising it, recombines its elements, creating a new musical “discourse” of their own until they master the instrument to very high levels (almost professional) in a very short time and with minimal effort, but nonetheless enjoying themselves. This parallelism between music learning and language learning reinforces on the one hand the need for a good model and a solvent teacher-consultant and, on the other hand, the singular importance of working with living texts rather than with the mere memorisation of vocabularies, lists or glossaries, artificial texts devoid of intention or without context.

### **Plurilingual projects today**

After all of the above, we can affirm that plurilingual education takes on special relevance in the historical moment in which we live and must attend to the development of all dimensions of human knowledge. It is a question of training citizens who will be able to face problems in different ways, thanks to their mastery of different languages and who will be able to understand plurality

and diversity thanks to plurilingual repertoires. In this sense, the proposal is to have less extensive but more in-depth curricula: it is a question of covering less content but, on the contrary, working to a greater extent on the content proposed. In other words, the proposal is to deal with less content but from a broader and more diverse point of view and more enriched, so that the content which is traditionally handled superficially on many occasions receives a much more multifaceted treatment, thus transforming a flatter and more superficial teaching into a multidimensional and spherical work, to use a visual simile.

What is achieved with this system are multiple benefits; on the one hand, integrating learning from different perspectives, while putting an end to the “rush” of teachers who have a lot of content to work on in a short time, which leads to a consequent lack of consolidation of learning and an increase in stress in the classroom. Secondly, a broader vision that facilitates inclusion and the treatment of diversity as a guiding principle in the classroom and, on the other hand, the implementation of a learning system that will allow students to incorporate into their knowledge the contents that were originally discarded from the curriculum in order to make better use of their cognitive abilities by reducing the extraneous load and operationalising the capacity of the intrinsic load and making better use of the germane load, while at the same time giving more significance, functionality and depth to our didactic approach.

Throughout this process, knowledge must be seen as relative and contingent, since knowledge is valid as long as it is accepted, but over time, much of this knowledge evolves and is modified by new discoveries and inventions. What is valid today may not be valid tomorrow. For this reason, it would also be advisable to establish a curriculum that, instead of being based on disciplines, is organised into problem or situation ecosystems, as proposed by Pérez Gómez (1998) and Schank (2010), so that one can move from one area or subject to another by working on the multiple possibilities of a centre of interest.

As an example, we can cite an experience carried out recently in a school in Tenerife (Canary Islands) on the occasion of the celebration of Canary Islands Day (30 May), in which different situations were carried out connected by this common theme:

1. We talked about what legends and stories were.
2. The legend of the dragon tree was told.
3. We searched the internet for „Dracaena Drago”.
4. The “mythological” question of the dragon that gave the tree its name was clarified.
5. A comic book was made in English about the legend.
6. The comic was published.



All these activities were carried out one after the other without interruption, always maintaining the attention and motivation of the pupils, who perceived the session as a simple succession of moments in which they collaborated and worked in a pleasant and playful way.

However, from the teacher's point of view, they had worked on concepts of language, literature, history, natural sciences, Canary Islands content, art, ICT, interpersonal work, social tasks, etc. And all of this was done through a multilingual methodology in which Spanish and English alternated without major complications.

Thus, starting from a trigger or centre of interest, a whole curriculum is deployed and constructed with a common thread, involving all areas and disciplines in its development. For this reason, it is important to select from the curriculum those contents that are most useful and have the greatest projection for our purposes. The development of learning must go from the closest to the furthest, from the simple to the complex, from the concrete to the abstract, as this guarantees the necessary scaffolding for the construction of learning. Normally, the curriculum is very extensive and much of the learning does not have a tangible and concrete purpose for the students; our mission, especially in the application of a CLIL methodology, is to select and sequence appropriately those contents that have more application, exploring beforehand the operational dimension of the curriculum, which is nothing other than the mere usefulness of the contents insofar as our students can test and experience their reality and the application of the same.

## Conclusions

The final complement to our proposal is to help our students to organise their learning by providing them with models, concept maps, diagrams, etc., which facilitate the incorporation and consolidation of everything they have learnt, as the work on the content itself is not enough to have a deep impact on cognition. This content is nothing more than an isolated set of data whose processing in terms of competence development is not usually worked on due to different circumstances. By means of these tools that we will provide them with as teachers, we will enable them to approach these contents from a meaningful and functional point of view, facilitating the transfer from the working memory to the long-term memory and transforming these data and all the information into knowledge.

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