SUMMEM

Learning and coexisting

PROJECT FOR THE INTERDISCIPLINARITY IN THE CLASSROOM

¿Which kind of school do we want?
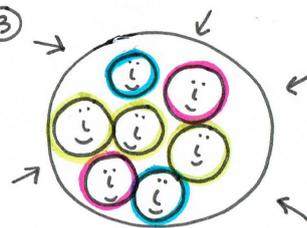
1. One that enhances interdisciplinarity

2. One that works by abilities

3. Inclusive

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Introduction

The Project to implement interdisciplinarity into the curriculum of Escola Pia of Catalonia comes from the second policy of the VI Assembly. Its aims required the production of a proposal of the evolution in the implementation of the curriculum in all the schools in order to make it more flexible and to enhance the definitive settlement of an interdisciplinary work and working by abilities in all the stages. This implementation should promote our position towards integration, as an element to address diversity, in the didactics applied in our classrooms.

The project seeks to take forward the application of the "Estil Metodològic de l'Escola Pia de Catalunya" (Methodological style of the Escola Pia of Catalonia) that requires, in its teaching proposal, a type of educational practice that, in front of the vast and repetitive curriculum; prioritizes the core knowledge in each area. Such core knowledge always suggested from clear, specific and assessable goals. It also requires a sequential application that leads the teacher to program ahead with strategic awareness, as well as enabling the learner to comprehend the aims and the planned process that should guide its learning process. A third key element of the teaching practice is the work in group interaction: we approach it, now, taking into account the social aspect of interaction in the learning proves and the cooperation as a fundamental habit linked to the processes of Teaching – Learning (T-L). The proposal to apply this project in each school means to define and to go forward in the lines of the Methodological Style.

The Project wants to broaden the teaching scenarios in the application of the curriculum, implementing a space that allows the interdisciplinarity. At the same time, it should allow and also enable the planning of a structure that embodies cooperative interaction in a group as a learning environment ideally by compentences and as a working frame of attitudes and abilities. Making the educational project grow, the designed scenarios should be ready to be applied in each one of the school realities hereafter.

The working teaching approach in the classrooms should promote the development of the competences. In order to do so, we must suggest the T-L as a process that adds meaning to the tasks and activities assigned, that awakens the student body's interest (beyond mere curiosity) and that opts decisively for activities that enhance a meaningful learning process. The work by competences requires ultimately the need for useful, contextualized and valuable learning from different disciplines or areas in an

integrated manner. Working by competences is aimed to the development of knowledge, Beyond remembering information and producing knowledge; knowledge that is nearer to the complexity of live and the contemporary coexistence.

We want to create space to develop knowledge that is contextualized, on the basis of cooperation in the interaction of the teams and to fully develop the teaching practice influenced by the Methodological Style. We bring forward a structure that adapts to the curriculum distribution in a time and a space that enables teaching practices that are interdisciplinary with methodologies that allow the design, program and assessment of an integrated and global vision of the different areas in the process of T-L. This proposal is the common framework that we create to develop a curriculum distribution structure that enhances the interdisciplinary work in the classrooms.

The ultimate and also first purpose of this project is to move forwards towards an education for live, working on the necessary abilities to be, know, live and coexist in a complex and ever-changing society.

This Project sets first the purposes (what for), establishes the aims (what) and pinpoints and outlines the teaching conceptualization (how) that supports the proposal and the suggested model of the curriculum application. Lastly, it specifies the proposal of minimum standards in each educational stage for the application of the model in the time distribution and the distribution of areas in each of the stages.

WHAT FOR?

School and Society

In our society, school has to educate open-minded, responsible, and committed people so that they can live fully and democratically. People that can learn actively, in critical manner, and in constant updating, with the ability to develop their learning how to learn in a demanding and competitive society in both the technological and professional levels. It has to foster an open minded way of thinking behavior in order to face anything new with a readiness to modify consolidated cognitive patterns. We must reconsider what we know in order to learn again. We must be able to create knowledge on the basis of cooperation among equals in contexts of dialogue and contrast, facing several different types of approach, to help create shared knowledge.

Our aim is to educate a citizen with the abilities to learn from non-formal and informal contexts in a continuum of learning throughout life to benefit from all the opportunities, combining the aspects of educational integration from any field in order to learn. To unlearn and learn again is to overcome the inflexibility and to find meaning so as to be ready to create. Openmindness, receptive readiness and active action are the keys to foster creativity and innovation.

Uncertainty and constant changes are the features of the current society. These require the study and a frequent reassessment of the contexts and situations subdued to evolution. A society with such complex features alienates itself from a slow educational system, with reactive reflexes, that is always being towed along social progress. The society of knowledge demands creativity in spaces and times of uncertainty, finding answers to the degree of unawareness we have to accept in order to make decisions. We always start from a certain insecurity of what we know, aware that we cannot possibly know

everything (furthermore, it is not necessary). In this uncertain context we must choose. In order to choose we need to filter and to reduce, summarize and shorten the information, to select the importance of the information depending on the aim, to consider and interpret this information in order to make the necessary decisions. So, we have to be able to transform the avalanche of information into useful knowledge. In the end, we have to learn to manage and to create knowledge.

School has to broaden the learning contexts in order to focus its teaching proposal to meaningful and contextualized learning. The ability to integrate knowledge from the creation of links and connections among, models, structures and specific knowledge from different disciplines or areas allow the creation of cognitive connections that generate new established knowledge. Thus allowing to overcome the stiff structure of a subject or an area and adding coherence and belonging to the generated knowledge, confronting theory and practice at the same time. The combination of knowledge and skills from different disciplines must be able to meet the demands of the exchange of knowledge so as to be applied in new and different ever-changing contexts.

School has to create spaces for research and breakthroughs, which are the processes of continuous intellectual exploration with a strong emphasis on the process and not only in the results of the creation of knowledge School has to achieve this putting in place teaching strategies of learning by discovering and putting in direct link with practice the theoretical knowledge and the acquired knowledge, to place in a position of importance the process of learning based on the experience which is the meaningful application of knowledge.

In the context of current globalization and of the communicative possibilities we have to take advantage and provide with substantial spaces of interaction in which to learn.

Network learning has to be one of the materializations; inside the classroom, at school and with external agents in an educational space which go beyond the school walls.

Accepting the growing uncertainty part of the contexts in where we move, school has to provide a typology of work that promote in the learner the personal autonomy to face challenges, its own self-knowledge and its own emotional control to maintain its effort and its eager optimism in order to achieve its set goals.

In the current criteria and frameworks, school has to build an educational proposal in a continuum of T-L, given the importance of the reason of the teaching approach, as well as bringing awareness about the methodology to implement the action. Ultimately, it has to give the necessary importance to the contents. It has to establish all the teaching process with the different moments in the continuous process of assessment, and at the same time it has to ensure a guidance that takes us to contemplate the learning process as a "whole", of a process and of a product; where the learner is the main axis and from where we can purposely build an educational action. Learning and knowledge technologies must also provide convenience to diversify and broaden itineraries and contexts that multiply the possibilities of personalizing the learning process.

PURPOSE OF SUMMEM

Escola Pia of Catalonia, in its own Character, expresses the "constant will of teaching renovation which is manifested in the innovation and improvement of the organizations methodology."

The IV Assembly of the Educational Institutions, endorsed, unanimously, the Methodological Style of Escola Pia of Catalonia.

That document sets a commitment undertaken by all the schools, in front of the students' body, the families and the society in general *"to achieve, from our work, free autonomous people, so that, in a discerning way, they can live in community and intervene in a committed way, in the development of the world".*

Throughout the years, we have been defining that agreement in each Centre, in its program, the T-L process and the students' assessment; in the teachers and also in organization of the school it-

self. We have progressed a lot, maybe at a slower pace that we would have like to, but we have moved forward. The assessment of the behaviors and the abilities is an example of this strong commitment for a continuous improvement.

The VI Assembly, requires from us a new defined step.

"To elaborate a proposal of the Educational Institutions, that is based on a flexible use of the resources, of the space and the time, that prioritizes work by competences, the use of interdisciplinary and globalizing methodologies and that fosters the increase of an inclusive character.

UA more flexible organization, in spaces, resources and time dedication to the areas, at the service of the students learning process, must allow teaching proposals of curriculum integration of different areas and subjects. At the same time it has to allow the coordination of the teaching team in order to develop a part of the curriculum

that integrates different subjects in the same academic year or educational stage.

Such interdisciplinary and globalizing methodologies should not only include the specific work in each area but also integrate the globalizing work of different areas or subjects.

· To put into practice and in a real context the learning from the different areas or subjects.

· To help the students body to detect interesting problems and to find solutions to these problems.

A work by competences in order to understand the world and to act accordingly through behaviors, attitudes and skills from thel *Methodological Style*.

· To help with the Exchange of knowledge in order to apply them to different and ever-changing contexts.

· To favor the basic competences, including those which are acquired in the disciplinary work.

· To have a useful and practical character linked to the experiences of the students' body.

An inclusive character of the teaching proposals so that they ensure the progress of each and every one of the students.

· For all the students body to contribute by participating in accordance to each one's possibilities.

· To organize a task so that the students body can help each other.

· That both individual work and learning, and group dynamics, attitudes and behaviors are ensured.

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WHAT FOR?

WHAT?

Aims of the SUMMEM

The project's aims are the following:

1.To implement a new distribution of space and time in the curriculum organization, in the different stages, so that the interdisciplinary work can occur.

2.To base from a teaching perspective the implementation of the curriculum in the different stages to ensure the application of the Methodological Style's work by competences.

3.3. To give the implementation of the curriculum in the different stages a teaching basis

 That ensures the inclusive character of the teaching proposal by the means of the application of a group cooperative methodology.

4.To suggest models of application and conditions to implement the curriculum that enable the interdisciplinary and globalizing work in the classrooms.

These aims are defined in an organizational and adaptable proposal for the different stages, and in a teaching conceptualization that encourages the educational proposal of an interdisciplinary work.

Context for the change

Putting into practice this Project will involve deep changes at different levels: timetables, team organization and team work organization, space-time management and a new distribution of resources. In order for this to happen, we will need the commitment of all the agents involved in the implementation and a redistribution of the leadership model.

We count on the network work among centers, the support of the institution and the participation of experts.

Teaching Conceptualization

SUMMEM

Project for the Interdisciplinarity in the Classroom

Devote:

No less time than **50%**

No less time than **25%**

| Nursery | Elementary | ESO (secondary) | Baccalureate | VT (vocal Trainning) |

To teach and learn on the basis of

Interdisciplinary Learning Itineraries

Active Methodologies

| Working by Projects | Learning based on Problem solving | Study / Research | Learning Service |

In a structure of cooperative work

Based on **practical, real contextualizated and exchange**

Using **Communicative tools** (speaking, reading, writing) **And asking good questions**

That ensure the consolidation Competences **Attitudes Abilities**

an education based on an

Inclusive character

HOW?

Time Distribution

Areas / Subjects work

It is the space and timetable assigned to each of the areas / subjects. Within this field we suggest the need to allocate set times to guarantee the consolidation of the basic instrumental knowledge: calculus (mental, written and by approximation), reading mechanics, silent reading, aloud reading; as well as time for the routine activities such as entering the school, reception at school, and interiorization. Simultaneously, we must ensure a systematized time to work on reading comprehension, writing and problem solving.

Interdisciplinary work

It is the space and timetable assigned to the proposals of interdisciplinary work. The organizational structure to enable this time slots is defined in two possible modalities:

A set weekly time slot and space exclusively devoted to interdisciplinary work within a time band (or more than one) with various consecutive hours.

Some consecutive days, set periodically and regularly during the academic year, reserved for the interdisciplinary work.

Both modalities are suggested as possible for all the stages of the compulsory schooling and post-obligatory studies. Each school/center will define which modality will be used for each stage in order to apply the interdisciplinary model of work in the classrooms.

In the interdisciplinary work it is specified the integration of contents from the different areas. Nonetheless, it is not necessary for all the areas to be present in all the teaching proposals that are developed. In a proposal there can primarily be two, three or four areas so that in the next proposal some different areas are studied. One of the areas can be the prime one and become the core of the workload in reference to the other ones. It is advisable to balance the presence of the different areas throughout the academic year.

The interdisciplinary work has to guarantee meaningful and competences learning. In order to achieve this, it has to meet certain aspects related to the features, the knowledge that is promoted and the work and assessment processes.

This work has to be carried out in different registers of communication and different types of speech and language: written, oral, mathematic, audiovisual, and artistic…in different channels or media and with various intents.

There is a need to work in and through the different analogical and digital environments to guarantee the development of the skills linked to the knowledge of information management and knowledge construction, both individual and within a group.

Work proposals features:

· Have to allow the integration of contents from various areas.

· Have to be close to real life interests of the students' body, so that is meaningful.

· Have to have a purpose of understanding society and how to transform it.

· Have to have explicit aims, shared and possible, in their work exposition, in the time disposition, necessary resources and time to carry them on.

The learning has to be:

· Useful and practical, applicable to resolve a problem or a complex situation.

· Real and contextualized, based on a set reality.

· Transferable, applicable to other problems, situations or contexts.

The work process

In the cooperative work all the student body has to become essential to fulfill the aims (contrary to what has traditionally been known as teamwork). The active work of each participant guarantees the inclusivity.

The necessary conditions for cooperative work are:

· Balanced participation.

· Simultaneous interaction of the students' body among themselves and also with the teaching body.

· Positive interdependence.

· Individual work and teamwork.

· Individual responsibility.

The assessment process

It is a privileged space to consolidate the work and assess the attitudes, behaviors and skills of Style, and also of the competences.

It allows the teaching body to develop a formative assessment process during the work, and to do the monitoring of the emotional, relational, communicative aspect of the interaction within the teams.

It allows the students' body to be aware of the aims and strategies they have attained and on which they have to keep on working in their own process and in their teams' processes.

In order to apply the Project, the different teams of teachers in each center have to specify the teaching methodology in the classroom. Any methodology, however, it has to meet the guidelines detailed in the previous chapters: set times for interdisciplinarity and the conditions, features, the process of work and the process of assessment.

Therefore it is guaranteed that the proposal establishes in the curriculum display the interdisciplinary work, and the T-L teaching practice addressed to the development of competences.

Below, there are four methodologies for the classroom, as a means of exemplifying, with a basic structure. For more details on them, you can refer to the annexes tables for the development of each one of the methodologies.

1 PROBLEM BASED LEARNING (PBL)

Methodology focused on building knowledge on the basis of an interaction of the students' body who reproduce the process of autonomous learning. It is a team work that intends to create the learning of knowledge and skills through the process of solving a problem or a complex situation.

"I have a situation, I've got a problem and, whether I have to solve it or not, it is necessary for me to understand it", "what do I have to learn?"

Luís Alberto Branda (12)

Work phases of the PBL

1. Define and present a relevant and a probable problem or a situation.

2. Determine the problem:

· Understand and analyze previous knowledge and express the needs.

· Explore the problematic situation: identify key topics to study, and put forward possible explanations for each topic.

· Define what is known about each topic: apply the knowledge to the current problem, iden-

tify the knowledge that is missing.

3. Plan and delimit resources and actions:

· Prioritize the needs and organize the work within the team.

· Organize the research of information and the required resources. Define the actions and the product that needs to be developed. Plan of work.

4. Individual work:

· Apply the plan of work and redirect the process when unplanned situations happen.

· Find the information effectively and depending on the resources at hand.

· Compile partial personal conclusions. Draft general conclusions.

5. Teamwork

· Share individual work results among the members of the team.

· Reflect on the learning and derive the principles of the new knowledge that are applicable to other situations.

· Produce the final product.

· Apply the new knowledge to the problem. New information research need may arise and then going back to the plan might be needed.

· Give reasons, conclusions and present the results.

· Think about the learning process both individual and within the team and suggest possible improvements.

· Assess the individual intervention and the interactions within the team with the tutor/teacher. The degree of intervention of the teacher body and of autonomy throughout the process will depend on the experience of the students' body using cooperative interaction.

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Students' body and teachers' body roles

The students' body role has to be that of a researcher with the ability to suggest and to reach different ways of solving complex and contextualized problems cooperatively.

A well-structured program needs to be in place so as to soften the uncertainty. The teachers' body role has to primarily be to promote different itineraries to reach a solution. It has to enable and boost the work process.

Resources

There needs to be spaces to enhance interaction and teamwork, with the possibility to check or refer to different sources of information.

Assessment

It is important to ensure the assessment to retrieve conclusions of the process and of the final product, to reassess the initial criteria and those of the approach to the problem or situation, according to the learning of autonomy and autoregulation, and this has to happen in the three teaching sequences:

Initial: ideas and previous knowledge, related knowledge.

Formative: problem approach and reassessment during the individual work and teamwork processes. Constancy to the presented work processes.

Summative: contrasting final conclusions, and conclusions that might be meaningful for other problems in other contexts.

2 PROJECT BASED LEARNING

It is a methodology that is based on the students' body interests. Its aim is to make students respond in a reflexive manner to that which is new in relation to that which they already know, in order to be able to use it in other contexts and understand the real world better.

Project based learning stages

1. **To present (the teaching body) or choose by reasoning (among the students' body and the teaching body) the topic or issue that they want to work on.**

   · To define or make explicit what one already knows about the topic.

   · To create a list with what one wants to know about the topic or the questions that arise about the topic.

   · To make a draft of the plan of work or index.

2. **Plan the work to be carried out:**

   · How much time do we have? Timing and Calendar.

   · What do we have to do? Plan the tasks or activities that will need to be carried out.

   · How will we get organized? Organization of the group – classroom.

   · How can we know? Who can help us? Define where, how and who will look for the information. Research and select information sources. Criteria to interpret the information found.

   3. **Carry out the activities:**

   · Study and research.

   · Organize the information found.

   · Assemble new questions, hypothesis, and definitions, based on the information found.

   · Put together the synthesis dossier. Put the ideas in order. Highlight the main ideas. Relate the main ideas to the secondary ideas.

   · Present / sharing results.

4. Assessing the process:

· Become aware of the followed process, the progresses and the difficulties: What have we learned? How hard was it to understand? How did we learn it? What did we enjoy the most? Have we improved as people? Have we improved as a group? Personal suggestions and team suggestions for the future.

· Apply what has been learnt to other situations or establish new relations.

· Make opened topics or unresolved topics explicit.

Resources

The projects can be done with only one teacher in the classroom, even if that doesn't exclude the assistant teacher to do the monitoring in certain moments or to specific students.

Depending on the type of Project, Internet Access should be granted, as well as Access to books and materials about various topics.

Assessment:

INITIAL: Explaining what one knows about the topic, prompt ideas that each student contributes.

FORMATIVE: Redo the index. Become aware of everything that has been learnt. Reach awareness of what has been achieved and what hasn't.

FINAL: Through the open questions or activities that allow the application of what has been learnt to new situations, so that we are able to know how students are attaining the competences that we have set out to observe.

3 STUDY/RESEARCH

It is a proposal focused on the creation of a type of knowledge applying a scientific method as a guided research process both in the individual and the team work. It also enables the experience in the field of documental research.

Work stages in the research Project:

1. Suggest and choose a wide research topic and assess the approach possibilities.

2. Obtain a global perspective of the topic from some first approximations.

3. Narrow the topic, delimiting and defining what will be studied.

4. Establish aims and a hypothesis (or more) that will be studied. Assess if it responds to the research suggested.

5. Pose questions that guide the study and answer to the aims.

6. Plan the study in reasonable and feasible criteria.

7. Find, analyze and assess sources and data that are useful and reliables.

8. Assess the collected proof and discern their usefulness in order to gather them into the final report.

9. Organize information and its presentation. Establish conclusions of the research.

10. Create and present the final product, document r report of the research.

11. Reflects on the process of the final product, the satisfaction of the work done and the fulfillment of the initial expectations of the questions to answer.

Students' body and teaching body roles

The role of the students' body has to aim to develop the interest to look into the research topic and to observe all the possible variables to delimit and plan a process that takes the students to a valid concretion. It will also have

to be able to redirect, individually and in group, in every moment of the process, the aims and planned structures.

The role of the teaching body has to enable the interest of the students' body to look into and define the research topic thanks to the procedures of the scientific method.

Resources

There is a need to have spaces for the interaction and the team work, with possibilities to check and have Access to various information sources.

Contact with research professionals have to be supplied to the students' body in order for them to make methodological and technical consults depending on the research topic.

Assessment

It is key to ensure the assessment of the three moments of any teaching sequence that corresponds to different moments of the research project:

Initial: ideas and previous knowledge, related knowledge.

Formative: stages of approach to the research and reassessment during the process of data collection and the constancy to the set aims.

Summative: contrast presented conclusions, and the conclusions which can be meaningful to suggest in other researches.

Assessment for retrieving conclusions of the process and of the final product. Reassessment of the questions and the initial approach of the study, problem or situation. In accordance to the learning of autonomy and the autoregulation.

4 LEARNING SERVICE

It is a teaching proposal that combines the learning processes and community services processes in a single Project, well laid, in which the participants are trained whilst working on the real needs of their context with the purpose of improving it.

Learning improves the community service, because the community wins in quality.

The service gives meaning to the learning, as what it is learnt can be transferred to reality as an action.

Stages

1 Presentation / Reflection

The first step is to imagine the Project and feel it as one's own. This can be done along with the students, but it is preferable to have it preplanned.

··Firstly, the needs in and out of school have to be detected and though of so that a socially relevant idea which links service and learning can be found.

· To find agents to whom the service can be linked, if this service is being carried out outside the school.

· Make the project's key points explicit:

· What? Brief outline of the projects.

· What for? The reasons for our action: ethical and social reflections.

· Who for? Explain who the project is addressed to.

· When? Timing within the calendar. Start and End.

· What with? Which resources will be needed, where will they come from?

· Write down the learning aims of the service.

· Share with the students' body and show the reasons why their contributions will be rele-

vant, present the aims.

· Carry out some awareness and motivational activities surrounding the projects.

2 Planning

· Think along with the students' body for a title for the project so that it equip it with entity and to achieve that students make it their own, think of an image and a logo…The name has to be related to the project at hand and not only be about aesthetics.

· Define all the to do tasks:

· Information / Formation Tasks,

· Preparation tasks

· Execution tasks.

· Set in written Word the stages, calendar and the task/tasks that will have to be done by each group and by each participant.

As the class group matures, the tasks can also get bigger or more complex.

3 Development

· Theoretical work: research and knowledge consolidation or analysis of the situation, reinforcement of new knowledge …

· Technical work: Required skills training, delivery of preparatory tasks, etc.

· In situ: if this is the case, getting in touch with the hosts and beginning of the task.

· Development of the programmed tasks.

Ensure the commitment with a job well done is absolutely essential in a service activity, due to the commitment towards the other that it involves.

Adjustment of the service: resizing, if needed, the timing, the activities, the responsibilities of the students, etc.…according to the real needs.

4 Assessment

·Identify cooperatively with the students' body everything that has been learnt, at all levels, attitudes, behaviors, skills, competences.

· Auto assessment of the group and individual.

· Celebration of the results: Acknowledge, appreciate, cheer the good results, as well as the effort of each and every one of the participants and of what they have done as a group.

· Assessment of the group and of each individual done by the teacher, based on the learning and service aims. Attitudes and skillss.

· Reflect on aspects which can be improved looking towards new projects and repetition of the same project with other students.

INITIAL: Explaining what each one knows about the topic, elicit all the ideas from each students.

FORMATIVE: Make students aware of what has been learnt. Becoming aware of what has been achieved and what hasn't. Assess specially the willingness and attitude towards the service.

FINAL: Through several open questions and activities which allow the application of what has been learnt to new situations, this way we will be able to know the students' progress on the acquisition of the competences that we aimed to observe. It is important to value students' involvement and their suggestions to improve the service, thinking about future editions of the project.

5 Resources

HUMAN

Projects can be carried out with the presence of only one teacher in the classroom, even though this doesn't exclude the assistant teacher having the possibility to monitor in certain moments or to monitor one or more specific student.

It is very important the relation created with the agents or people (partners) that collaborate with the service, within or outside the school.

MATERIALS

It depends a lot on the type of Project being carried out, it is certain that we will need access to the Internet, and have in access to books and various materials.

It is very good to link expert people that can come to school and explain to the students the importance and the need of the service that we want to develop: municipal expert, association leaders, etc.

Curriculum organization in stages

For the organization of the curriculum in each one of the educational stage there is a set of a minimum percentage of time assignment to the interdisciplinary work. Furthermore, in it there is a detailed explanation of line or aspects for each stage. The specification for each of the stages in defined in the most appropriate methodology, if they are at considerable, and the mainly involved areas in the teaching proposals for the classroom

Finally, in the chapter there is a summary of the minimums of assignation for the interdisciplinary work in each educational stage in a Summary Table. In this summary there is a reference to the minimum percentage and also to the curriculum areas according to their usual involvement in the constitution of the teaching proposals for the interdisciplinary work.

NURSERY SCHOOL

Classroom methodologies

At the nursery school stage there are various appropriate methodologies outlined adapting them to the level of each classroom.

Mainly, Project based learning and Problem based learning are supposed to enhance students to ask themselves questions, form hypothesis and look for solutions. We mustn't confuse Project Based Learning with center interesting proposals that can unite the areas in a disconnected and without any real interrelation way.

Likewise, the study/research in the approach of the research object, the approach and the verification of the hypothesis and the checking of the results can be a useful methodology for the work in the nursery classroom.

Time assignment for the interdisciplinary work

At the nursery stage the minimum proposal for the interdisciplinary work is set at 50%. That means 15 weekly hours.

To the rest of the hours we have to take into consideration the time slots to the inherent life in the classroom in each case: circle time, roles, routine tasks, interiorization…Time assigned to routine activities and instrumental activities (spelling words, drawing and shapes, calculus…) and to the classroom work of specialties (psychomotor education, English, Music…)

Subjects and areas involved in the interdisciplinary work

At the nursery stage the usual work in the classroom is already presented as a globalized based on the three curriculum areas: knowing oneself, discovering the environment and our surroundings and the communication and languages. It is important to maintain this global feature of the learning process and to avoid the subdivision in matters of resemblance to elementary school.

ELEMENTARY EDUCATION

Classroom methodologies

At the elementary education stage all outlined methodologies are appropriate if adapted to the level of each cycle.

It is regarded as convenient to work on the basis of the methodology of Learning Service starting on the MEDIUM CYCLE or SUPERIOR CYCLE.

It is important that the students and the teachers progressively integrate the structure of the sequence of the methodology being used, following each one of its steps.

Time assignation for the interdisciplinary work

At the elementary education stage the minimum proposal for the interdisciplinary work is set at 25%. That means 8 weekly hours.

To the rest of the hours we have to distribute the time slots to work the different areas: specialty (Religion, Musical Education, Physical Education and English), the interiorization; and also for working the key contents of each area.

Subjects and areas involved in the interdisciplinary work

The knowledge areas of social environment and natural environment will usually be nuclear areas of the interdisciplinary teaching proposal. Languages, Arts and Math will always be present in all the interdisciplinary proposals as instrumental and communication areas.

We also have to take into account the work assigned to systematic activities to consolidate instrumental knowledge (calculus, Reading, orthography, calligraphy, PAI, work on interiorization…).

We must ensure the assignation to mentoring or class assembly.

SECUNDARY EDUCATION (ESO)

Classroom methodologies

At the secondary education stage all of the outlined methodologies are appropriate for any of the courses. The methodological variety adds worth because it allows the students to work in diversified learning contexts and situations.

It is important that the students and the teacher progressively integrate the structure of the sequence of the methodology that is used following each one of its steps.

The students will have to go on consolidating, progressively during the stage, the ability of working and learning autonomously, becoming capable to perceive complexities in the problems and to contribute with solutions that are adequate to the context.

Time assignation for the interdisciplinary work

At the secondary education stage the minimum proposal for the interdisciplinary work is set at 25%. That means 8 weekly hours.

To the rest of the hours we have to assign the time slots to work the different areas: specialty (Religion, Musical Education, Physical Education, Arts and English), the interiorization, mentoring or class assembly; and the rest of the areas where key contents of each one are worked on.

For the interdisciplinary work, various work proposals can be grouped on the basis of two main thematic blocks: one with a scientific-technical character and another with a social-humanistic character.

Subjects and areas involved in the interdisciplinary work

The areas of Social Sciences, Citizenship, or, Experimental Sciences and Technology will usually be the nuclear areas of each one of the blocks of the interdisciplinary proposal. Languages and Math will be present in all the interdisciplinary proposals as instrumental areas or communication areas.

We also have to take into account the work assigned to systematic activities to consolidate instrumental knowledge (calculus, reading, orthography, and work on interiorization…).

BACCALAUREATE

Classroom methodologies

At the Baccalaureate stage it is appropriate and particularly important to work on the basis of all the outlined methodologies. The variety of work contexts and the degree of autonomy that the students will have to show prepares them for the adult, professional and superior studies world.

It is necessary that the work proposals arise on the basis of real challenges and problems linked to the territory (local or global). It is desirable that they are suggested from the Institutions or Firms that work on the problems in a determined context, thus linking the classroom to the work and the results included in the reality.

Time assignation for the interdisciplinary work

A the secondary education stage the minimum proposal for the interdisciplinary work is set during the First Year of Baccalaureate delimited by the equivalent of a whole week once a term.

Subjects and areas involved in the interdisciplinary work

For the interdisciplinary work we will group the proposals around de different modalities. The contents will originate from any of the common and elective subjects.

VOCATIONAL TRAINING

Classroom methodologies

The professional field stages have an applicable nature in a high degree of the teaching proposals they develop. That is what vocational training requires and the development of the professional competences that come out from the aims of the Cycles and Trainings, might they be formal or non-formal.

It is necessary that the work proposals arise from real challenges and from problems linked to the territory (local or global). It is desirable that they are suggested from within the Institution or companies that work with the problems in a certain context, thus linking the classroom with the work and the results included in the reality.

Time assignation for the interdisciplinary work

At the vocational training post-compulsory the minimum proposal for the interdisciplinary work is set at the equivalent of a whole week each term.

Subjects and areas involved in the interdisciplinary work

For the interdisciplinary work we will group the proposals around the specialty and the areas that are involved

The contents will originate from any of the common or specialty subjects.

The Credits or Synthesis Assignments in the vocational training stage are also interdisciplinary professionalizing fields

Time assignation and areas distribution Table

	NURSERY	ELEMENTARY	SECONDARY	BACCALAUREATE	VT CYCLES
Time assignation to the interdisciplinary work	50% 15 hours weekly	25% 8 hours weekly	25% 8 hours weekly	First baccalaureate year, a whole week per term	In all courses, a whole week per term
Involved areas in the interdisciplinary work				Work proposals based on the real problems and/or challenges contextualized	Work proposals based on the real problems and/or challenges contextualized in accordance with the professional competences
NUCLEAR AREAS	KNOWLEDGE OF ONESELF KNOWLEDGE OF THE ENVIRONMENT AND SORROUNDINGS	SOCIAL ENVIRONMENT NATURAL ENVIRONMENT	**A: HUMANISTIC SOCIAL:** SOCIAL SCIENCES CITIZENSHIP RELIGION **B: SCIENTIFICAL-TECHNICAL** EXPERIMENTAL SCIENCES TECHNOLOGY	Linked to the part of the modality but with an applied content of any subject	All the areas involved in the interdisciplinary work
AREAS OF USE and COMMUNICATION	COMUNICATION AND LANGUAGES	CATALAN LANGUAGE SPANISH LANGUAGE ENGLISH LANGUAGE ARTS MATHEMATICS	CATALAN LANGUAGE SPANISH LANGUAGE ENGLISH LANGUAGE ARTS MATHEMATICS		
SPECIALTY		RELIGION MUSIC PHYSICAL EDUCATION ENGLISH LANGUAGE	MUSIC PHYSICAL EDUCATION ENGLISH LANGUAGE MENTORING		

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ANNEXES

OUTLINE OF THE FOUR METHODOLOGY PROPOSALS

1 PROBLEM BASED LEARNING (PBL)

PBL	Stages of Work	TEACHERS role	Students role
Presentation	Define and bring up a problem	Inspire curiosity around the problem. Adjust the uncertainty that might arise	Imagine the situation or problem globally to think about the limits and the action possibilities.
Planning	Delimit the problem	Help define the limits and the approach possibilities. Enhance a compensated thematic search approach .	Understand the problem situation and the difficulties and strengths. Draw the lines and a Plan of Work based on what's .
	Plan and delimit the resources and actions	Enable differentiated frameworks of information search	Anticipate search and synthesis processes based on the information that is found and how to manage .
Development	Work individually	Guide within the difficulties and the need of concretion in the search of information. Help to constantly refer the process and the information to the problem that is being .	Search information, manage it and execute the foreseen plan. Redirect the process if needed. Formulate provisional .
	Teamwork	Enable ways of possible solution to the disagreements in the group activity. Assess jointly the contributions of information depending on the importance for the presented problem.	Share information, Search information, manage it and execute the foreseen plans. Redirect the process if needed. Formulate provisional conclusions.
Assessment		Propiciar la relación con otras situaciones parecidas. Evaluar la intervención individual y las interacciones de grupo.	Reflect on the learning process both individual and in group. Suggest possible improvements. Assess the individual

2 Project based learning

	Teachers role	Students role
Presentation	Be receptive towards the motivation of the students and their interests. Boost the curiosity and the initiative of the students. Enhance the Discovery of the viability and the outreach of the topics. Inspire, collect, clarify and put in order the students' contributions. Look out for everybody's participation. Interpret the ideas that come up, working as bridge with accurate language.	Suggest topics. Justify the proposals. Choose the topic Define the project. Make previous knowledge explicit. Verbalize the follows process in the definition of the project.
Planificación	Prever la temporalización de las acciones. Valorar la eficacia y la viabilidad de las tareas y acciones. Distribuir, o ayudar a distribuir, las tareas y acciones. Formular los criterios de agrupación. Prever las fuentes de información, materiales, espacio, tiempo. Vehicular el proyecto.	Choose the tasks and action that will have to be carried out. Elaborate an action plan. Distribute the tasks and actions.
Desarrollo	Relacionarse directamente con cada alumno. Poner al alcance el material necesario para desarrollar las actividades. Sugerir los medios para recoger, transmitir y organizar la información. Ayudar al alumnado a tomar conciencia: seguimiento del plan de trabajo y resultados que se vayan obteniendo, y también de las variantes que aparezcan en relación con la planificación inicial.	Carry out the planned activities. Search the information: interviews, readings, observations, experiences. Collect and organize the information: graphic representation, schemes, tables, maps, mural, etc. Preview new tasks or.
Evaluación	Ayudar al alumnado a recordar el proceso seguido. Evaluar el aprendizaje del grupo de alumnos y las competencias conseguidas por cada alumno a nivel individual.	Compare what they knew and what they know. Look for what worked and what didn't Elaborate and disclose conclusions. Assess the groups work

3 STUDY/RESEARCH

	Stages of research work in the classroom	Teachers' role	Students role
Presentation	Raise a broad topic of research.	Promote the study possibilities of the reality beyond the first idea.	Globally imagine the different possible aspects of the topic that need to be researcher.
	Get a global perspectives from the first approximations.	Adjust the uncertainty that may arise.	Do a first search to place the topic and possible research lines.
Planning	Delimit and narrow the topic	Help specify the limits and the approach possibilities. Enhance a compensated thematic search approach which is assumable by the group.	Draw the lines of the Project plan. Narrow the study focus.
	Establish aims and hypothesis.	Help adjust and define what wants to be studies.	Detail the research by narrowing all the study aspects.
	Formulate questions that guide.	Give guidance support to the formulation of questions referring to aims and hypothesis.	Ask questions that one wants to answer with the study.
	Plan the study	Enable differentiated channels of information search. Support and guidance to structure the tasks and the time adjustment to the possibilities.	Anticipate search and synthesis processes based on the information that is found and how to manage it.
Development sources	Analyze and useful data.	Help assess the reliability of the sources and the obtained data and the accurate response to what's being studied.	Assess the obtained data and the adjustment to the aimed goals.
	Assess the collected proof.	Give support to the criticism process of the collected data.	Assess the data critically.
	Organize the information, the representation. Conclusions.	Help reasoning accurately the obtained results.	Put in order and organize the information to justify all the process followed and obtained results.
	Create a final report and present it.	Put in order and present the process and the final product with the corresponding conclusions	Look out for the general coherence of the research and the communication of the results and conclusions.
Assessment	Reflect on the product and the process	Encourage the reflection of the followed process and of the learned knowledge.	Assess the process with the incidents and knowledge acquired in order to be able to use the in other moments.

	Teachers' role	Students role
Presentation	Search and think about a socially relevant idea. Pan all the process according to the key points. Write down the aims. Communicate to the families. Speak with agents or entities involved. Act as a dynamizing and motivating agent.	Participate actively in the dynamization activities and suggest new ones if needed
Planning	Motivate the groups, avoiding to give everything already done to the students. Organize work groups. Follow and give orientation for the planning of each group.	Plan, first individually, the activity proposals and the timing. Reach an agreement with all the group members. Set in written the tasks and responsibilities of each members.
Development	Promote, follow and control daily The development of the project Assign a time slot to speak with each member and make their individual monitoring.	Carry out accurately, the tasks that each one has been assigned.
Assessment	Help students to remember the followed process so that they are aware of their learnt attitudes and competences. Assess the learning of the students group and the acquired competences achieved by each of them individually.	Ask for help from the colleagues in those aspect where problems may arises. Express everything what they have learnt at all levelss Elaborate and transmit the conclusions Assess the group work. Suggest improvements thinking about other activities.

The cooperative structure of the activity in the classroom

Pere Pujolàs Maset (Vic University) June 2013

What do we want to change?

We set out changing the activity structure of our classrooms, that is, the way how the students works in the classroom, when they are asked to do their programmed activities.

The most standard thing is for them to work alone, in separated tables if possible, without anybody caring what the rest is doing, interacting only with the teacher in case they have a doubt or want to ask for something. They are set out to learn the subjects contents and for them to reach the aimed goals. Students achieve it if they put effort, if they work, if they do their homework, if they reach this goal whether the other reach it or not; that is, they can learn what the teacher wants them to learn even if the rest doesn't, only with their effort and work and with the help of the teachers, when needed. The others seem to each students as mates, more or less like friends, to whom they can ask for help if they need it or to whom they can help if they are asked, outside the classroom, even if inside of the classroom the teacher allow it, but, in general, each of them "plays their own game". In this case, this is considered and individualist structure of the activity

Surely this individual structure is the most usual, and is the one that is followed by school textbooks, which formulate questions or the activities of the learning process using the second person singular: "Write which is the mission of the following elements…"; "Indicate 3 characteristics…"; "List the differences between…"; "What do you think was discovered first…? Give reasons for your answer"…

Sometimes, maybe because the teacher is looking for it or trying to prompt it, on purpose or maybe without even knowing, because it comes out from the students themselves, a certain rivalry is set among students to see who finishes earlier, who does it better, who get a higher mark, who get the public recognition … It is quite usual that this rivalry exists among students, above all among the brightest ones. In this case, they also work alone, each one on their own desks,

Interacting only with the teacher, but competing with their classmates: now they do pay attention to what the others are doing, mostly to those who they believe to be their "rival" because they are "competing"…A symptom of this is the fact that sometimes they try to cover with their pencil case or a folder their notebook so that the neighbor won't be able to see what they are doing or how they are doing it… In this case the intention is for the students to learn the contents, reach the aimed goals but, if possible, being better than the rest of their classmates. On this occasion, they reach this goal if, and only if, the others don't: they will be on top of the class only if the other ones are on second position. In a situation like this, it is very possible that each classmate is seen as a rival, against whom to compete, therefore, it is logic or understandable that they hide information or they deny their help, if they get asked. If this is the case, we say that is a **competitive structured activity**.

This competitive structure is probably not encouraged currently explicitly as much as it was before, even though it is still encouraged implicitly or indirectly by the teachers, by the students or even their families.

There is still a third way of organizing the classroom activity, that one in which the students doesn't work as an individual, but in reduced groups, so as to help with their classmates and team mates, to help one another, interacting with them if they have a doubt or haven't understood something, and only interacting with the teacher when nobody in the team can help them with their doubt. In this case, the intention is, logically, to learn what is taught, that they reach the aimed goals, but we also ask for them to contribute other members of their team to reach the goals. In fact, they get there best when they help each other, the same way reaching the top of a mountain more easily if we approach the challenge as a team and not alone. In a way, we ask them not only to learn what we teach them but also to work as part of a team, as this is the only way they will be able to help one another. And so, this double goal is reached, only if, the other members also reach it. In a situation like

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this the others, Seem like Friends that are not competitors or neglecting them, but they are there to help until they all reach the goals. It is not about, obviously, about ones knowing less so that everybody knows a little but on the contrary, that everybody reaches their maximum capacity of knowledge. A structure like this is not in competition with the research and the obtaining of excellence by those who can reach it, but this excellence is not obtained avoiding others, but the other way around. In this case this is a **cooperative structure** of the activity.

Therefore, that is what we are set out to do: change the structure of the activity, go from an individual structure and also competitive to a cooperative structure. It is not an easy change, as the individual structure, when we have achieved to control the class, gives us a lot of serenity and reassurance: there is silence, if anybody needs you they just put their hand up and we go and attend to them, the students who want to work do… Nevertheless, it is very difficult to achieve participation of all the students. In a big group, not everybody dares to ask for another explanation if they didn't get what the teacher just explained and some students feel really bad about it (due to shyness, for example) when the teacher asks them to express their opinion…

On the other side, it is very difficult to attend to the students diversity, as it can be many of them putting their hands up asking for help. However, a cooperative structure of the activity enables participation from all students and enhances much better paying attention to diversity: working in reduced groups (a team or four or five), opposed to the big group (the whole class), encourages participation from all of the students, thus letting teachers attend to diversity of the classroom as most the help required is being done peer to peer within the groups. Nonetheless, at the same time, with a cooperative structure, it is far easier to lose the classroom control (there is more noise, they can get distracted easily, and instead of helping them they simply copy somebody else's answers…) thus losing the reassurance and serenity that we had achieved with the individual structure.

What to do, then? The ideal situation would be to be able to keep control of the classroom – so as to keep our reassurance and serenity – in spite of organizing the students' activity' in a cooperative manner, in order to overcome the individual structure's inconveniences..

If this is possible – and there plenty of experiences showing so -, we already have two good reasons to try changing the structure of the activity in the classroom: as it enhances and boosts everybody's participation and enables attention to diversity. But there are still more good reasons. Let's read about them.

Why are we suggesting the changing of the activity's structure?

We are set out to change it for three more essential reasons

Firstly: because it is the only way to attend students' diversity, for different types of students to learn all together, even when they are really different in their motivations, interests, abilities, culture…

I've said it once, and I'm saying it again: in an individual structure it is practically impossible to attend to diversity, especially if the differences are quite strong. So, we tend to prepare lessons (explanations, activities…) and to face students thinking about the 50% of medium average, risking to leave out both 25% on both extremes of the scale. That is why, there is a rising tendency of homogeny distribution of the students: as it is so difficult to attend to those who are so different, we group together those who are most similar, those who have a similar competence level; or we either select those who are more "diverse" (for example those who need to overcome more obstacles in their learning due to, for example, some disability or because they have a different culture to the majority) so that they can be properly attended by those who are prepared to do so. And teachers who think likewise base their opinion in common sense: it is logical, common sense, to group the students depending on their level of performance so as to better adjust the teachers attention to their needs. This reasoning, which respond to the homogeny logic, turns out against those who they are trying to help out, due to the negative effect that the "labels" we hang on students depending on their personal features has..

These labels impact in the teachers expectations and said expectations impact on the students' performance. When we have great expectations about a certain student and then he doesn't learn, we insist again and again (because we are sure they can learn) and according to planned it eventually happens…However, when we have

low expectations about a certain student and they don't learn, we stop trying (because we are certain they can't learn), and thus, effectively, they end up not learning… This phenomena, largely studied in the education field, is known as "the self-fulfilling prophecy" or "the Pygmalion effect".

On the other hand, separating students by competence levels limits the chances of them learning from each other, taking for granted that learning it is only (and foremost) possible thanks to the interaction between teachers and students, forgetting (or not giving enough value) to the importance in learning of the interaction among equals: it is also common sense that the one who hasn't learnt how to speak, will learn more easily next to one that speaks correctly, interacting, instead of grouping the one with others who don't speak or have trouble speaking…Common sense also tells us, so, that it is logical to group students with different abilities and motivations so that they can learn from one another, and they can encourage each other to learn.

Therefore, it is not better to separate students in homogeny groups to minimize their diversity, but on the contrary to distribute them in heterogenic groups and find a way to understand diversity, managing said heterogenic group. And this happens when we swap from an individual and competitive structure to a cooperative structure.

Secondly: because it is the only way to develop in the students values such as solidarity, mutual help, respect for the different, coexistence… How will they learn to coexist, help each other, respect each other… people with functional or cultural diversity if they have all been educated in different environments, if the "diverse" ones, have been excluded from a classroom or a common center and attended separately?

Coexistence involves something else tan just tolerance. To tolerate is not the same as to coexist. In order to live together, beyond tolerance we have to bet for coexistence. To tolerate each other doesn't match to coexist, but it means the opposite: not relating to one another, only respecting because they have to: "I tolerate you as a neighbor, because I cannot take you back to you country", that is what many people think… Coexistence is a very different concept. It means to be completely sure that coexisting is possible, that it is possible to open up to others fearlessly, never giving up to what one is, but always looking

for and accepting the possibilities that others offer or present us with (Camps, 1996).

Coexistence has to go hand in hand with solidarity, of mutual help; it means to take care of each other, because we need one another to develop as human beings.

In a classroom organized as a cooperative, students have the privileged chance to stop focusing on themselves, and to learn to coexist, to understand and to take care of others, to be supportive and to help each other to make positive and long-lasting bonds grow so that they become a cohesive group.

Thirdly: The development of the basic competences (or at least some of them) requires a cooperative structure of the classroom.

That is to say, some basic competences cannot be developed properly within an individual or competitive structure of the classroom activity. Some communicative competences —for example, expressing, reasoning and interpreting thoughts, feelings and facts; listening to other's opinions; accept and make constructive criticism; standing on somebody else's feet using empathy; respecting opinions that are different to one owns with sensitivity and critical spirit…—, and some social competences —like practicing dialogue and negotiation to resolve conflict; working in group and contributing each one with what they know in order to solve together common problems…—, ¿how can all these be developed in a classroom with an individual structure, in which students practically have no interaction among them, or in a competitive classroom, in which they compete against each other?

Therefore, it is difficult to practice, and so, to learn, these competences and others, if students don't get the chance to work together, in teams, inside the classroom, on a daily basis, that is, if the classroom activity is not structured as a cooperative.

This change, how does it really work?

This is, as previously stated, what we intend to do: to change the activity structure of the students in the classroom, going from and individual and competitive structure to a cooperative one.

But, how does this really work? Which elements of our teaching structure do we have to change in order to change the structure of the activity of

the students in the classroom?

In order to do so, we have to identify firstly which ones are the essential elements, those which determine and decide our teaching structure, so as to know what it is that we really need to keep and what we need to change: we wouldn't want to change secondary elements, that Deep down, would mean that we still had the same structure, and so, we would have change something but nothing would have really changed….

Generally, in educational actions, a great importance is given to these two elements: the asymmetric interaction that is set between teachers and students, and the effort and the personal and individual work of the students. The better the teachers intervention on the students (first element: interaction teachers-students), the more chances students will have to learn. However, this does not guarantee that they actually learn; this first element is a necessary condition, but it is not enough. In order for the students to learn, we also need for them to make an effort, for them to work, and the bigger the effort the bigger the development and the learning that the students will reach (second element: individual work). All of us who work in teaching will agree on the fact that these two elements are essential: no devoted and loving teacher will ever say that the interaction we establish with our students and their personal work are secondary elements, unimportant….Notwithstanding, in spite of sharing these two essential elements, it is certain that there is no two teachers who teach exactly the same way: other secondary elements make them different in their way of teaching in the classroom. I have to highlight this to show the fact that sharing a same essential structure is not opposed to the fact that everybody develops and has their own teaching style, that each of us teaches "their own way".

Instead, in general, it is almost never highlighted the importance of a more symmetric interaction that can be established, in the educational action, among the students themselves (third element: interaction student-student), and we also give very little importance —as is thought to be a waste of time most the time— the teamwork that could arise during the educational action (fourth element: teamwork). Nonetheless, from Piaget and Vygotsky —following a broad and old tradition in teaching, that values the role of equals in the learning process— it is very clear that the interaction among equals who are learning (children, teenagers or adults), in a more symmetrical

relationship, it is as important as the most asymmetric relationship between the students and the teachers. From an intellectual point of view — Piaget states (1969)— the relationship among equals is the best to encourage a real exchange of ideas and the reasoning of them, that is, all the behaviors which are able to educate a critical, objective and speech reflective mind.

Our own experience confirms it: surely, during our schooling, we had the chance to see that sometimes we understood something much better when coming from a classmate rather than when coming from the teacher. We could also verify plenty of times that "excellent" students, before and exam, have the habit of getting together, asking each other questions, finding out information and going in-depth asking anybody when their answers are not the same and thus creating a "cognitive conflict"… They do this, not because they are bored, but because they have experimented that it is a great strategy to study and to prepare for an exam.

The change we bring forth, so, entails this: what "good" students do of their own accord outside school hours, now we have to put it into action, from the teachers' perspective and initiative, for all the students, within the school hours. In other words, we want to introduce two new elements to the previous two already mentioned: the student-student interaction and the teamwork. Hence, in addition (not instead of) to the teacher-student interaction, we have to also give great importance to the student-student interaction, and as a result, in addition (not instead of) to the effort and the individual work, we also have to give importance to the teamwork. This is not about, obviously, substituting one for the other, but to add something else to what we are already doing. And when we adopt, in our teaching structure, these two new elements (student-student interaction and teamwork) as equally essential, each one of us will be able to their lessons their own way, because there will still be secondary elements that will determine that there will be no two people doing their lessons the same exact way.

It is this simple, even if at the beginning it looks more complicated than it really is: it is about organizing a classroom in such a way that the interaction among equals and the teamwork are something usual because we make it explicitly and in an organized manner. It is not about making students do, every now and the, an assignment within a group, rather than having the classroom

usually organized into stable teams of work, who work together, in group, when they have to do activities or solve the proposed exercises.

Let's put it, if you wish, in a more "graphic" way: When we prepare a new topic or a new teaching unit, if our classroom is structured individually or competitively, we know it is done and ready and we can "rest assured" once we've resolved this two first questions: How will I explain what I want to teach so that they learn it? What will I make them do, which activities will I prepare for them to learn it? But, when we want to organize the classroom activity with a cooperative structure we cannot "rest assured" until we've cracked, in addition, a third question: How will I present these activities so that everybody will participate and interact among themselves as much as possible and work in teams? In the first case scenario, our structure is based on the first two elements (teachers-students interaction and individual work). On the second case, to the existing two elements we add up two more: student-student interaction and teamwork.

Which conditions do we need to talk about real teamwork?

The most visible aspect, and also important, of the change we propose is that the students don't have to work alone, each one at their desk, but rather in reduced groups (three to five members, generally). Now we need to get in-depth about this question: what it means to work in a team within the classroom, or in other words, which conditions we need to be able to talk about real teamwork.

Let's set an example. Let's imagine that we are in a mathematics lesson and that our students has to solve four problems. We can either structure this activity individually. In this case each person will work alone on their desks trying to solve the four problems, if they have any doubt, they will raise their hand to ask for the teacher's help.

But we can also structure this activity in a cooperative way, distributing students in teams of four, trying to balance each team with a student who can really help, a student who really needs help and two students who are average. This way (not individual but cooperative) of structuring the activity, gives us three ways of proceeding, that go from least to most cooperative.

First way of proceeding

If the instructions are simply: "You now have to solve this four problems, altogether, as a team", it is most probable that the most capable student says: "I know how to do it…" and that the others think "How lucky am I! We have one who knows the answers!". "How do you solve them?" they will ask, and they will probably, proud to know the answers, will show the answers for the others to copy…

Obviously, we don't want them to do this, we will tell them off and if they keep on acting thus, we will stop the teamwork for good, reasoning that if they work in teams, some of them do nothing, they don't work individually. Therefore, "No, that is not the way to do it; you have to solve the problems together as a group by each contributing as much as possible".

Second way of proceeding

If we insist in the sense that it is not about ones doing and the others copying, rather than doing it all together, it is very possible that someday one of the members comes up with a different strategy: "I understand! There is four of us and there are four exercises…? Let's do it the way the teacher wants us to: you can do the first one; you, the second one; you, the third one; and I will do the fourth one. Once we finish, we will each copy the ones we haven't done…"

If they do this, we won't like it either because they will take what each of them has done as "well done", and the teamwork will just mean the addition, the juxtaposition, of four individual parts of work…

Third form of proceeding

In order to avoid the two previous and erroneous ways we've just described, we have to be more precise when we give instructions, not only telling them they have to do it together, in a team, but tell them the steps to follow throughout the activity. For example: "For each one of the problems you have to do the following: first you solve it individually. Next, I will let you know when to show the person next to you how you've solved it, discuss and decide which one is the best way to solve it. Finally, I'll let you know and the two pairs in the group will have to show one another the solutions and, if there is no agreement, you will have to discuss and agree on a way that suits the four of you".

Let's move on. In the first proceeding, the teamwork has occurred in a non-structured manner: one took the lead and the others followed; the leader did the activity almost alone and the rest have just copied. There has not been neither equitative participation of all the team members, nor simultaneous interaction (discussion, contrast of opinions, dialogue, agreement…) among all of them

In the second proceeding, the teamwork has been carried out in a partly structured manner: they've distributed the workload, each has done their part. There has been, so, an equitative participation, but there has not been simultaneous interaction.

In the third proceeding, the teamwork has been carried out in structured manner, that is, following the steps in a determined cooperative structure (in this case they've done a structure 1-2-4): Following this way of doing, by doing the steps instructed there has been both equitative participation and simultaneous interaction.

Therefore, only in the third proceeding have had two of the four essential conditions for real teamwork to happen, according to Spencer Kagan (I will refer to the other two in a moment): equitative participation and simultaneous interaction. If one of these doesn't happen (as is the case in the second proceeding) we cannot speak of real teamwork, rather than a "fake" teamwork or "pseudo" teamwork.

Equitative participation

According to Kagan (1999), we cannot let students' participation to arise spontaneously – unforced by any structure – within the teams. For example, a teacher can be satisfied because students are discussing within the team in an unstructured manner (the way to resolve a problem or carrying out some activity…). Said unstructured manner —in this case, posed as a discussion – doesn't assure the balance on participation for the group members: for sure those whose best interest or actually need to verbalize their point of view will be the ones with the least chances to do so, precisely because those who don't need it will be the ones monopolizing the participation. To leave out to students the task to distribute equally their participation is delusional and almost always ends up in unbalanced participation. In this sense, the cooperative structures from Kagan or other similar structures guarantee the participation – equitative and

balanced to a certain degree – of all the team members.

Simultaneous interaction

Spencer Kagan (1999) defines simultaneous interaction as the percentage of the members of team openly committed to their learning at a certain moment, interacting at the same time, simultaneously. In a team of four members there will always be more simultaneous interaction than in a team of five or three. If the number of components of a tea is odd (three or five) it is highly probable that at some point some of them are not interacting with others and are left out of the activity.

Individual responsibility

more thought, following the same reasoning thread: another condition for there to be real teamwork is the individual responsibility of each one of the team members. We often stop our students from working in groups by saying that, if they work in a group, some are not working individually at all, because they rely on the team or other team members to tell them what to do… Somehow, if we think about it, is because we are contrasting individual and team work, as if teamwork were to cancel individual work… In the previous example, when applying structure1-2-4, it is highly likely that in "situation 1" (individual work) somebody won't do anything, relying on the fact that in "situation 2" or in "situation 4" they will be told what to do and how to do it… Obviously, this could happen and it has to be avoided. If it happens, nonetheless, we cannot blame teamwork for it, because it wouldn't be due to teamwork itself, but rather due to a "pseudo" teamwork. Of course there can be individual work without teamwork, but there can never be teamwork without individual work, because everybody's responsibility – the individual work, the contribution of everybody— is an essential condition for teamwork.

Interdependencia positiva

In order to make teamwork efficient, the first thing that needs to be done by the team members is to have clear goals: to learn and to help learning. To have a clear idea of this goals, to unite in order to reach them in the best way possible, amounts to increase what is technically called the positive interdependence of purposes.

It is also important, but not essential, to play

different roles within the team: coordinator, secretary, leader, assistant, (and speaker, if it's a five member team). So as to highlight what is known as positive interdependence of roles it is necessary that each team member has an established role and knows exactly what to do (which responsibilities they have) to carry it out.

In the same way, if the team has to do or produce something (a written assignment, a mural, oral presentation…) it is necessary for them to distribute the workload (so that everyone participates equally) and so increasing what is called positive interdependence of tasks.

Bit by bit, these work teams – which once establish are called Basis Teams – become the basic distribution units for students. It is not only a temporary team, created to carry out in group the activities prepared for a lesson, rather than stable groups who work together every time that the teachers ask for it. As they continue to work together, they get to know each other more in-depth and they become better friends, which fosters and increases what is known as positive interdependence of identity. Pin order to raise the awareness of this identity several strategies can be used: name the team, create a logo, keep the team "papers" in the Team Notebook, etc. Furthermore, the group celebrations increase and reinforce this identity.

To close up...

Allow me, yet, a last consideration: we suggest for them to work in teams in the classroom so that they learn on their own to do what we intend them to learn better. In this care, teamwork is a great strategy – because not only does it Foster interaction with the teacher but also among peers – to learn the contents (competences) of the different areas or subjects. Cooperative structures, either simpler or more complex, have the purpose of – providing they meet with the required conditions of teamwork – making students learn what we teach, not for the purpose of assessing it but to know whether they have learnt it or not.

If a student only "copies" what others do, if they do not take the chance of interacting with their team peers to learn and learning how to do what the teacher are teaching, it is going to be difficult for them to learn it or learn how to do it by themselves… The final goal that we are looking for here is for students to learn and transfer autonomously the knowledge to new situations…

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ANNEXES

Is it necessary and possible to promote and interdisciplinary way of learning?

Neus Sanmartí, UAB, June 2013

The debate about what needs to be learnt at school nowadays and how it has to be learnt it is wide open, but there is an agreement that those elements cannot be the same ones that we had during the schooling of those of us who are adults now. For example, in the present we have information at our grasp and we don't to waste time storing said information in our memory on the basis on what is read from a textbook or from the teachers' speeches, and we cannot believe that school – nor university – prepare us to exercise a career that we will have for a lifetime.

Each society, in each historic moment, decides what need to be transferred to the next generations. In the western world, in the Middle Ages the formative curriculum for free people was organized around the Trivium (grammar, dialectics and rhetoric) and the Quadrivium (arithmetic, geometry, astronomy and music), land the basic languages were Latin and Greek. Lessons focused on reading texts and commenting them. It was in the XIX century when the curriculums which are the origins of our current tones started being defined, with the separation of two culture – sciences and languages – and the implementation of new subjects such as chemistry, physics, history, geography…

But, what need to be learnt from the XXI century? Right now there is a lot of talk about competences and the future framework in which we are currently moving in. This entails learning (and storing in our memories and incorporating to our way of living) knowledge that is essential to find, comprehend, critically analyze and know how to use information so as to act responsibly in the world that surrounds us, to create new knowledge and to face with initiative the solving of all types of problems. There are different types of knowledge, related to the cultural knowledge build up throughout the centuries such as those which allow us to work with others, democratically debating ideas and ways of doing, and to act efficiently and responsibly in an ever evolving world. As it is defined in the document "Development and Selection of Competences" (2002) promoted by the EU, competence is:

"The capacity of answering to complex requests and doing different tasks appropriately. It entails a combination of practical skills, knowledge, motivation, ethical values, attitudes, feeling and other social and behavioral components that are jointly mobilized to get an efficient action" (SeDeCo, 2002)

This new point of view about learning is not banal, it doesn't only imply the change of statements in the curriculum. It is neither an add on to what we are already doing, that is, it is not that up until now we differentiated the goals into knowledge goals, procedural or attitudinal aim and, now, we add on the competences, rather than competences being the part that integrates all of the goals, taking into account that "the whole is not equal to the sum of its parts". The key is found in the word action associated to any competence definition, which tells us that the goal to be assessed is not whether the students remember or reproduces a certain type of knowledge or procedure, rather than whether they can apply them to act in different situations.

We don't know how the school of the future will have to be yet, but we have questions we need to answer which help us to think about it. For example, do we need to keep parceling up the knowledge in the current subjects and distribute them into preset schedules? Does it make sense to teach this knowledge dogmatically, out of context, focused on the teacher's speech…? Can conceptual contents be taught unbound to attitudinal or skill contents? In order to assess the degree of acquisition of this knowledge, are the current tests enough? etc. etc.

On this essay we will reflect upon the possible ways of organizing the curriculum so as to be able to deal with the new challenges. In times of change, doubts always arise. For example: if we introduce new practices, will the students learn what the need to know "to succeed" when they go on to the secondary education stage (if students are in elementary school) or to pass the entry exams for university (if they are secondary school students) or to exercise a career? Firstly, we need to bear in mind that on the basis of the new methodologies only significantly small part of students actually learn, and secondly, is that there is a tendency towards external testing which is increasing (PISA, for example), that university is also immerse in the same challenges and that companies are increasingly looking for employees with these new skills. Let's not forget that changes in education are not revolutionary and that they take quite some time.

Globalized teaching methodologies for the new type of learning

As we have seen, the concept of competence entails the ability to respond to complex requests. Therefore, teaching in a compartmental and out of context manner doesn't seem like the way to promote competences. That is why it is not surprising that nowadays there's an insisting need for applying globalized methodologies which help establish interrelations among different types of disciplinary knowledge.

Many of these methodologies have been known (and applied) for over a century.

Traditionally we discriminate amongst:

· Multidisciplinarity (information juxtaposition such as, for example, finding and understanding what's published about water transfer in between river basins)

· Pluridisciplinarity (juxtaposition of points of view from different subjects such as, for example, when there is a symposium on the issues of water transfer in between river basins)

· Interdisciplinarity (integration of points of view from different subjects so as to build a reasoning, solve a problem or make decisions, for example, to promote an action related to a particular proposal of water transfer in between river basins)

· Transdisciplinarity (transference of knowledge which specific from one subject or another, as it would be using the concept learnt related to the water cycle, to analyze the rocks cycle)

All the currently suggested methodologies entail working on the basis of contextualized situations, even if they are posed from a disciplinary way of teaching. But the real facts are complex and their study cannot only be approached from one subject. The selection of a methodology depends on the beliefs of people who apply, as well as on the type of task or goal. Possibly

The most appropriate one for a competence type of work is the one on interdisciplinarity, which could be defined as the construction of a new piece of knowledge related to a problem-situation, on the basis of the knowledge that comes from different subjects (Fourez et al. 2002). Examples of this type of interdisciplinary knowledge could go from the elaboration of a healthy diet proposal, the planning of a project to make the people of the quartier or the village aware of the responsible use of water or the design of a working toy.

Throughout time, there have arisen many proposals on working in the classroom on the basis of real situations. We might have heard about "interest centers" advocated by Decroly, by the "Freinet methodology", by the "projects" –which have evolved since W. Kilpatric-, by the "interdisciplinary teaching units" approach, and more recently by the "problem based learning (PBL)" or by the "learning and service".

In fact, under the same headline you can find the practice of different methodologies and vice versa. For example, behind a "Project based work" we can identify practices focused on collecting data on different topics (dinosaurs, pirates or cinema), like others which involve building knowledge to give foundation to some action (species extinction in the present world, the pirates of the past and the present, or making a movie in order to communicate and idea).

This last vision on projects is the one that has more to do with the way of teaching through competences due to the fact that its purpose is the construction of new knowledge that interrelates different types of knowledge, but in order to be able to learn how to make essential decision and to act responsibly. It is not about learning contents first and the applying them, rather than in order to achieve the competence goal of the activity we need to start with its integration.

A scheme of ideas and practices associated to this methodologies when we envision them in a competence based curriculum is shown in figure 1 and extended in the following section:
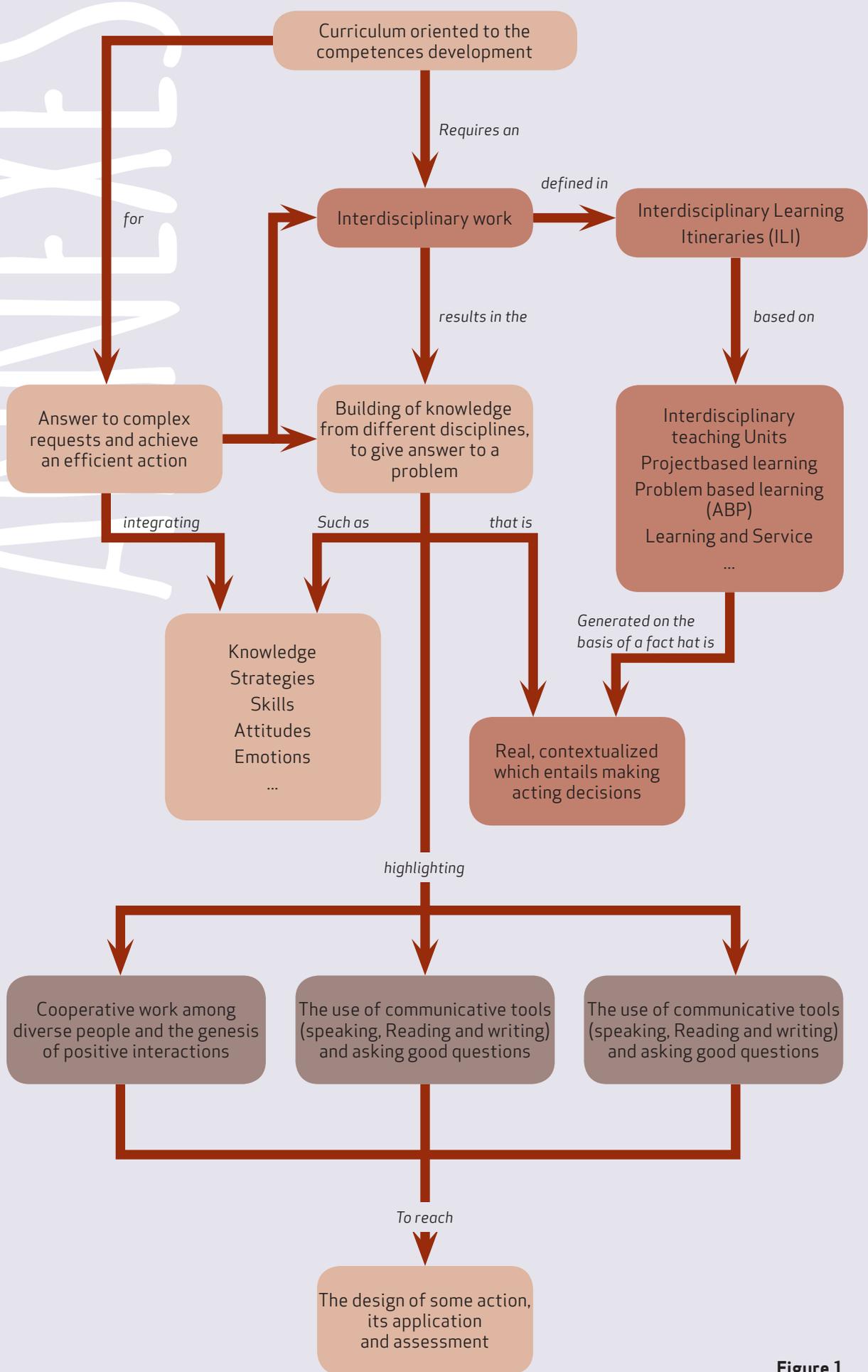
Curriculum oriented to the competences development

Requires an

for

defined in

Interdisciplinary work

Interdisciplinary Learning Itineraries (ILI)

results in the

based on

Answer to complex requests and achieve an efficient action

Building of knowledge from different disciplines, to give answer to a problem

Interdisciplinary teaching Units
Projectbased learning
Problem based learning (ABP)
Learning and Service
...

integrating

Such as

that is

Knowledge
Strategies
Skills
Attitudes
Emotions
...

Generated on the basis of a fact hat is

Real, contextualized which entails making acting decisions

highlighting

Cooperative work among diverse people and the genesis of positive interactions

The use of communicative tools (speaking, Reading and writing) and asking good questions

The use of communicative tools (speaking, Reading and writing) and asking good questions

To reach

The design of some action, its application and assessment

Figure 1

Features of possible interdisciplinary learning itineraries (ILI) focused on the development of competences

In education there are no recipes which guarantee a good learning. A good learning is the result of a complex process in which many variables are interrelated. Nonetheless, we know what is it that doesn't work, which ones are the practices which even when applied daily we are certain they don't enable the majority of the students to be more proficient. As Joshua and Dupin (1983) said, teaching laws which can be stated refer more to things which cannot happen (constrictions) than to how things should happen (prescriptions).

We often believe that if the way we've taught a topic doesn't get the majority of students to meaningfully learn, this is not due to the applied methodology, rather than to the fact that the students are not studying or to the surroundings or familiar surroundings conditions. But the challenge is for the school to be able to develop the abilities of all kinds of students, despite their conditions. It is true that, for example, there is a high correlation between the learning results and the sociocultural students' surroundings, but it is also true that there are schools where even having students that come from disadvantaged strata of the society, they get results that are higher than average. These schools are known to have good teaching teams, who don't give up on the learning process of their students and who work by applying innovative methodologies. Furthermore, different studies show that good students are not impaired by the application of said methodologies, but rather, a great majority of those who usually got low results improve their results a great deal.

Some features of these practices which "work" and that are related to the interdisciplinary work are:

· Negotiation of ILI (and of the goals)

· Learning on the basis of rethinking the initial representations

· Opening up to new views, different questions

· Construction and integration of disciplinary knowledge

· The group learns on the basis of the "different diversities"

· The use of communicative tools

· Assessment as a learning engine

· Action related final production

a) Negotiation of ILI (and of the goals)

Interdisciplinary work involves sharing with the students what we want them to be able to do, that is, the goals of this work. It is not so much about reaching an agreement on a study topic but rather on how to define the **context** in which they are going to work, the **recipients** of the work and the **final production** or **action** that we expect for them to generate, all of these according to a question or problem.

The ILI can emerge when going on a visit r a trip, after watching a movie, or Reading a piece of news, or listening to a story or after observing something or after the sharing of a group member experience, but the negotiation of the goals is not necessarily linked to the initial activity. Frequently, at the beginning we construct an initial representation, but throughout the itinerary we reconstruct it and define it, while learning the new necessary knowledge that will help giving and answer to it.

Negotiation neither needs to come from the students or be the result of a poll among them. Their proposals usually reproduce what they already know and they are not very open to ask themselves "different" questions". But if the teacher or the teaching body brings the negotiation up, they have to bear in mind the possible interests of the group, so that the knowledge learnt from it has a meaning, that it connects with their lives and that it is "new" (Garriga, Pigrau and Sanmartí, 2011).

The goals which are defined – as previously mention can evolve throughout the itinerary – are the ones whose acquisition will have to be assessed at the end of the process. They will be, thus, goals defined on the basis of how to show one's competence, integrating all sorts of knowledge.

b) Learning on the basis of rethinking the initial representations

Another one of the important features involved in the accomplishment of any learning process is that students are able to **express their own points of view, in relation with the ways of thinking as well as the ways of doing, of talking and feeling**. We know that learning is not about adding new contents to the mind, because the mind is full of ideas, values and ways of doing which we can contrast with others, revise, extend…, identifying in which application fields they are valid and in which other fields we have to reformulate them. For example, there are ways of speaking which are valid in a day-to-day context but they are not valid in a school or academic context.

Therefore, it is not about collecting an inventory of knowledge that shape the start point of the students in relation to ILI contents, and then, forgetting what has been said, explaining which are the "true contents" or asking the students to find them in books or on the internet. Instead we'll have to help building that initial knowledge, promoting that it is the student itself – along with their peers – who put their statements or the validity of their way of doing or evaluating to the test.

In one of the ILI representations, contents emerge not all together at the beginning, but as they while carrying out activities and new questions arise. The teacher's job is more focused on understanding why the students think or do the activity a certain way and to try to open them to other points of view, rather than explaining to detail which ones are the correct ideas and how exactly to do the tasks. This is what is known as **going from a teacher-centered learning to a student-centered learning**.

And so, there's the need to give time for each student, individually, to be able to think about what they are thinking and to express it, without judging their ideas as right or wrong ones, but as ideas which will have to be put to the test and that we will built altogether. That is why it is so necessary to create a good class atmosphere and some "game rules" which are different to the usual ones, rules in which "errors" are somewhat normal and somewhat to learn from.

c) Opening up to new views, different questions

When students note that there are different ways of viewing a situation, doubts and questions arise, as well as the will to know more. Nonetheless, there is tendency to view the problem from one point of view only, usually a point of view related to what it is or what is happening and, sometimes, with a simple why it happens.

This is why it is important to **pose questions which help to broaden ones views and to create new ones**. Examples of unfrequently asked questions by the students (or by the teachers, or by the textbooks) are related to validation (how can I know if our idea is valid? how can I prove it? Is it possible that…?), to prediction (what can happen if…? which consequences will there be if…), to management (what can we do to…? How can we solve…?) And to evaluate (what is most important? What can be the most valid?) (Roca, 2005).

Also other questions related to possible views (disciplinary knowledge) to bear in mind (coming from science, art, literature, economy, history, music, religion…), controversies, associated values, and ways of learning…

Being proficient requires making connections when it comes to solving problems and moving different knowledge in an interrelated way. And the teachers have to set the example and always look to relate what is being learnt from a topic to other already studied topics, to other disciplines, and to the possible personal experiences of the students.

d) Construction and integration of disciplinary knowledge

Commonly, in order to give answers to the initially posed problem, we will need to learn knowledge from different disciplines. According to the posed questions, the obstacles that arise during the solving process, the students age and the available period of time, it will be necessary to give priority to certain knowledge first. This is what Fourez et al. (2002) call "**opening black boxes**". It is not only about collecting information about a topic, but also about building the necessary knowledge – disciplinary - to promote the answer to one of the questions that emerge during the ILI. For example, in order to elabora-

te a healthy diet proposal we will have to understand how the nutrients that food supplies are transformed when they are digested, what each of the nutrients bring to the nutrition and how the amount eaten impacts on a diet being healthy or not, Reading food labels and understanding the meaning of KJ and Kcal, understanding what is a percentage, what are the values and attitudes linked to a healthy diet, etc. It may be decided that this knowledge is not built but rather that information is collected, but yet there will be the need to allocate enough time for learning the basic knowledge in order for the students to be able to give grounded reasons for the decisions made.

It makes no sense to introduce this new knowledge with a teacher's presentation or with a textbook Reading or with the Internet as basic activities. In order to learn **students have to carry out activities in which they have to actively participate, that is, they have to imagine, manipulate, observe, compare, analyze, assess**…, ultimately, they have to be able to do, think and speak, consciously knowing that this new knowledge helps them better understand the problem or situation which is the object of the action, and to experience the feeling linked to acknowledge that what they are learning matters.

The activities have to be diverse and the sequence in which they are planned will have to enable the progress in the learning process of each of the content pieces. Each type of activity helps achieving certain teaching goals and, in addition, each student usually finds some of them to be more useful to learn than others. For example, there are students who like summarizing by making a conceptual map or a scheme, whereas others prefer writing a summary text. Attention to diversity is mostly about diversifying the activities. And among all the possible activities those who help with the abstraction and the synthesis of new knowledge that is acquired based on the goals and becoming aware of them are important.

e) The group learns on the basis of the "different diversities"

Getting to the end of the ILI successfully entails the whole group committing to its resolution, based on each ones contribution.

People are social beings and as a result we learn from interacting with others. **Ideas are rebuilt by contrasting ones' own to those express by our peers**, teachers" ideas or those which are written in books, and the **values "are caught" in the frame of a group who practices them**.

Every group is divers and we learn from this diversity. As R. Duschl said "if there wasn't diversity we would have to make it happen", because in order to compare them they would have to express different ways of thinking, of doing, of valuing and of feeling. Everybody must be able to express themselves and, simultaneously, to help and be helped in return.

Therefore, every **ILI requires the institutionalization of the groups way of working, on the basis of having to agree the** "**game rules**" which enable cooperation (Pujolàs, 2008), the proposal of initiatives, verbalization of ideas, the respect for all the contributions and the mutual help in the resolution of the problems and obstacles, revising them when needed. These rules have to be taught and learnt because if they are not promoted, the class-group builds their own rules which are often not very useful for the construction of knowledge or to reach the end of the ILI successfully.

A good classroom structure is about organizing well the work teams. However, we must always begin with individual work (we can share, discuss and compare after individually questioning one's thoughts and how one would solve the problem), and we must make sure that at the end of the process each student has interiorized the knowledge that has been built collectively (that they store it in a well-organized manner). Therefore, plenty a times it makes no sense to plan the learning process according to the work distribution in each group or for each student of each group to answer a question by looking information up. For example, when we calculate a diet's nutrients percentages we don't learn when just a student looks information up about the topic and then telling the other members of the group. Interdisciplinary work entails the collective construction of knowledge, and not so much collecting or copying information.

f) The use of the communicative tools

Language plays and essential role in all the learning processes and also in getting an ILI results to get to their recipients. Pin order to propose proposals and express different points of views,

contrast them with others or sintethyze ideas it is necessary to talk, discuss, listen and write using communicative modes which are diverse such as oral, gestural, drawing, using images, using graphics…, manually and using IT tools.

These tools require that students learn how to use them bearing in mind that each discipline has its own language. A language is much more than just specific vocabulary or symbols. For example, the scientific language is very different from the literary language and is known by, amongst other aspects, being hypothetical and because it uses terms with accuracy and uses the third person in the verb tenses. Therefore, in one **ILI students will have to learn to change languages and interrelate them depending on the communicative purpose.**

Reading will also have an essential role, especially critical Reading (Oliveras, Sanmartí i Márquez, 2011). Students are used to the fact that the goal of reading is to be able to answer questions, and to find the exact answers in some passage of the text, whilst what matters most is that they learn to infer the answers by connecting the content of the reading with their ideas with the goal of the ILI. Furthermore, as most of the information comes from texts found on the Internet or on newspapers or magazines, it will be necessary to provide students with criteria which allows them to decide whether the content of a Reading is valid or not.

g) Assessment as a learning engine

Throughout the making of an ILI (and not just at the end) it is essential to promote autoregulation of the obstacles and challenges that emerge, that is, to promote the raise of awareness, to understand its causes and to find ways to overcome them. If students carry out the tasks correctly from the beginning it means the tasks were too easy or that they are cheating. What is standard is to make mistakes or to think alternatively to what has been agreed as valid, as we said, learning entails in revising ways of thinking, doing, speaking and feeling.

Furthermore, **the goal is for the students to learn how to do this autoregulation process autonomously** and that they don't depend on the teachers to tell them where their mistakes are or what to do to overcome them. Therefore, sit will be good to take time to think on how we do the

tasks to agree on criteria to assess their quality and to apply them in order to make decisions about what needs to be improved and how to improve it (Sanmartí, 2010).

A valid activity example is the elaboration and application of rubrics for the co evaluation and auto evaluation.

A basic condition for this to happen is to get a **class atmosphere** where everybody can express themselves **turning** the "**error**" **status**: from being something that needs to be hid, to something that is necessary for the learning process. This will be the only way to get students to stop feeling embarrassed about saying what they think or about experiencing the failure sensations when they are not auto evaluating themselves very well.

And a second condition for this to happen is that those who are learning get to understand why they don't understand something or why they are not very good at carrying out tasks without this having an impact on their self-esteem. In order to achieve this it is important the focus of the regulation work is focused on the analysis of how to carry out the tasks. The time slots allocated to what is known as "retrieval" have to be set around the particular obstacles that emerge – how to direct food, how to do combined operations to calculate calories or how to distribute the paragraphs in a text in order to justify a diet -, and **not** around students who "have problems".

h) Action related final production

As initially stated, every ILI has to have a goal set taking into account its recipients. Therefore, it wouldn't make sense to end it without **applying the acquired knowledge to an action** that highlights the "usefulness" of the new knowledge. The final production, at least in some of the ILI carried out, would have to go beyond communicating the families about what has been done and what has been learnt, and to participate in some collective action (from occasional actions to more complex projects of "Learning and Service").

This work makes it possible to **experience values related to responsible actions** (towards the environment, health, people…). To go in-depth into the so called transversal themes makes sense if they are integrated into the process of learning the knowledge which is the basis of the derived actions. That is, in order to carry out every ILI

we should **interweave the activities which are focused on building disciplinary knowledge with those focused on giving answer to the contextualized posed problem**— which make it possible to propose and to justify a creative decision making -, beyond slogans or prototypical behavior rules.

Therefore, the action that is agreed upon predetermines the production of a synthesis and an integration of the acquired knowledge which are necessary to be able to give reasons to ground it.
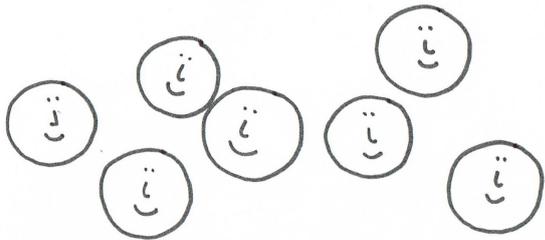
It also entails planning its completion and to agree upon possible proposals, present them spoken, written and through images, to apply it and assess aspects which give it competence worth and also all the work done.

Some final thoughts

Cualquier cambio genera inseguridades y requiere Every change generates uncertainties and requires the slow substitution of some routines for some others. Changes in education are very slow (if we trust what pedagogue Gimeno Sacristán says, they need 50 years to consolidate) and often, so, when applied there's already new knowledge in all the fields which influence on education and the context have also changed. Consequently, good teaching is defined by being open to learn and incorporate new practices fearlessly, but in a responsible way grounded on knowledge ("theoretical knowledge").

They are also defined by not giving up on making their students learn, despite the conditionings that many have. They are solid in their demands, but with great warmth and empathy, and they transmit the pleasure which wisdom brings along. And, very especially, they believe in the values that they proclaim (they cooperate with their peers, they open their classrooms to their students, and they act responsibly…).

But the same way that it is the whole class group who learns, in a school it is the teachers and professors who learn and teach. When we get disappointed, we must be able to find colleagues who give us a little nudge and renewed energies (why don't you try such proposal? Why don't we try this another way?). If the team doesn't work, it means that the methodology used is no good. That is why it is so important to count with a good direction team as a promoter and enabler of an innovative type of work or as a reinforcer of initiatives contributed and applied by teacher which leave routines behind.

Interdisciplinary work is a means amongst many which makes it possible to help students develop their competence but, luckily, in all type of this kind of work teachers are the key piece of the whole process which encourages Young people to build knowledge and, above all, provides them with a certain degree of wisdom.

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